TIME FOR AN EDTECH RETHINK
EXECUTIVE SUMMARY

Although ‘EdTech’ or Education Technology is witnessing considerable growth, it is subject to significant questioning. Educators remain unconvinced of its benefit. Start-ups, investors and enthusiasts engaged in the domain are inspired by its huge potential, at times claiming EdTech to be the solution to the Education Problem. However, whilst EdTech can indeed bring significant benefit to education, such outlandish claims require a healthy dose of tempering.

EdTech’s promise of a catalyst for education often disappoints. Teachers can feel disenfranchised by EdTech, at times even anxious about job security. After all EdTech, Artificial Intelligence in Education (AIEd) and Virtual Reality (VR) announce a rather unpredictable future of smart technologies that will impact on teaching and learning in and beyond the classroom.

For EdTech to become an enabler and augment teaching and learning, it needs to be scaffolded to and driven by appropriate learner-centric design, pedagogies and recognize the importance of context. Teacher education can no longer ignore EdTech’s importance for teachers to flourish in the classroom and support their learners. Without these considerations EdTech will continue to disappoint.

In a world in which learning and unlearning are fundamental to solve the challenges our planet and humanity face, knowledge-based education alone no longer suffices and EdTech has a fundamental role to play. Ignoring its appropriate introduction to the classroom and beyond, will prevent today’s learners from thriving in tomorrow’s world.

Addressing some of the woes and myths of EdTech, as well as engaging with its promise and potential, this paper highlights that the time has come for an EdTech Rethink.

INTRODUCTION

The EdTech market is buoyant. Analysts and investors estimate an annual growth of 17%, to $252bn by 2020.1 To date growth has mainly been driven by the US, but South East Asia, the Far East and Middle East are seeing considerable EdTech engagement. Europe, mainly the UK and the Nordic countries, have vibrant EdTech start-up scenes, yet European investment in the sector has been rather lacklustre. Policy, institutional reluctance and market complexities present obstacles for EdTech seeking sustainable growth. Africa, on the other hand, presents considerable opportunity supported by growth in mobile technologies, despite current infrastructure challenges.

Regardless of the promise of growth, EdTech entrepreneurs and start-ups regularly see their products fail. Institutions grapple with EdTech introduction. Budget considerations, lack of infrastructure or appropriate understanding lead to its absence in strategic decision-making as too often EdTech is technology-driven and not sufficiently education-informed. Considered an IT problem, rather than an enabler of teaching and learning, its introduction can result in significant upheaval and frustration. Unable to convince and transform, lacking evidence of benefit, impact and outcome, EdTech has disappointed.

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SUFFERING FROM RETROFIT

Technology has transformed every aspect of our lives and continues to do so at an exponential pace. Yet, why does EdTech not make an impact on education? Some enthusiastic teachers and forward-looking institutions may have ‘flipped the classroom’2 and introduced technology to their lessons; however the trend is by no means ubiquitous.

Education tends to be a rather static domain. Nineteenth-Century education models, originating in the Industrial Revolution, are still in vogue. Classrooms have

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not changed much. While computers, technology and coding may have been part of the curriculum in some countries, EdTech hasn't had a transformative impact on the classroom. Even where schools have adopted interactive whiteboards, Learning Management Systems, Virtual Learning Environments or allow for BYOD, the interactive whiteboards, Learning Management Systems, and appetite for a technology challenge, embedded in genuine passion for better education. Yet, lacking understanding of pedagogy, learning and context, EdTech has frequently tended to put Tech first, at the peril of Ed.

Teachers and educators creating digital resources or tools encounter a different problem. Whist ingesting, integrating and subject expertise in their digital resource or tool, an insufficient understanding of learner-centricity, usability and interactivity translated into digital interfaces, can have an equal detrimental effect as learners don't engage. For EdTech to flourish, pedagogy or androgogy, learner-centric design and technology need to work together, underpinned by digital channel and usability expertise. Without it, EdTech will continue to retrofit and remain an end in itself.

DOES EDTech WORK?

EdTech is not shy of claims, mostly derived from market research rather than education understanding or supporting evidence. This can be exceedingly hard to obtain. After all, innovation may not be able to tap into evidence. Whilst evidence should never stifle innovation, without gaining relevant validation, EdTech won't be able to substantiate benefit or learning outcomes. Education insight and validation mindfulness are prerequisite.

The tension this creates for the EdTech start-up cannot be underestimated. To get the investor’s or other stakeholders’ attention, EdTech needs a compelling argument. This is regularly lacking, as proving impact of EdTech-intervention scenarios may not be possible. This highlights the importance of teaching and learning understanding and its demonstration in the product. Without it, convincing will remain difficult.

EdTech’s Dependency on Teacher Education

When it comes to the classroom and Learning, the use of technology takes on a whole new dimension. EdTech needs to enable and enhance pedagogy and learning interventions in a discreet context, based on the teacher’s EdTech insight. Yet, teacher education still tends to ignore EdTech. It does not address the careful orchestration or design of EdTech-enhanced teaching and learning and considers EdTech an IT or ICT issue, rather than an education enabler.

Ignoring EdTech in teacher education can only result in an ongoing disconnect and a status quo. It won’t develop teachers’ digital acumen for pedagogically and ethically informed integration of EdTech. Finding oneself in a classroom as an inexperienced teacher, facing a seemingly complex technology, is not likely to empower nor instil EdTech engagement.

Unless teacher education recognizes the need for the development of EdTech skillset to scaffold classroom interventions, the teaching profession will be left in the cold. The gap between EdTech and Education will only continue to widen.

ONE SIZE DOES NOT FIT ALL…

In traditional education models, a front-of-class teacher delivered knowledge-based instruction to all students. In short, education modelled a one-size-fits-all industrial model that focused on servicing a need for knowledge rather than aptitude. These models still prevail. Adopting 19th-century education models is no longer adequate for learners to thrive in the 21st century. An education that allows us to ‘think big’ is indispensable, for ‘inclusive education means recognizing and accepting differences across the full spectrum of learners.’

Inclusive education refers to the need for the recognition of the individual learner, her aptitude and interests, context and culture, complemented by an instilling of competencies and engagement with Meta-Learning and Meta-Concepts. EdTech can no longer be ignored in this consideration.

Interdisciplinary and international understanding, nurturing empathy and plasticity of mindset are prerequisites to thrive in the 21st Century, supporting learning in school and beyond, throughout life. It is in this sphere that EdTech has to play a transformative role for learners to blossom and gain indispensable digital skillset. Engaging with these facets of education is likely to bring the most exciting and apt EdTech innovation to date, whether to support learning and teaching in a remote context or the most technology-enabled setting.

EDUCATION IS CONTEXT

Context fundamental to education; there is no such thing as a “one education”. For the purpose of this paper, context is defined as factors that are relevant for learning, including the interactions that learners experience with multiple people, artefacts, and environments. In addition, ‘culture’ and cultural setting cannot be ignored.

The belief that an EdTech solution can work anywhere or everywhere is widely upheld. Yet, local policy, curricula, infrastructure, pedagogies, culture and environment vary hugely, sometimes even within one country. The impact of context on EdTech scalability creates an uncomfortable tension for EdTech. A product may only suit a particular context and lack substantial growth or scaling opportunity sought by investors. Not all products can work in multiple contexts. Yet, for EdTech to bring appropriate benefit, must it not ignore context.

EDUCATION IS POLITICS

One can’t deny the importance of politics in education. Politicians and policy makers strive for stability and not for systemic change. Parents, school leaders and teachers – playing a significant role in the electorate – want a safe and stable environment. This can considerably impact the adoption of EdTech, especially in K-12 institutions.

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5Iram 5th grade student

6www UNESCO Institute of Statistics, October 2016

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8Cukurova, M., Luckin, R., Baines, E. 2017. The significance of context for the emergence and implementation of research evidence: the case of collaborative problem solving. Learning and Meta-Concepts. EdTech can no longer be

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However, policy makers can no longer ignore the need for pedagogies that focus beyond knowledge-based learning and consider competencies such as empathy, ability to collaborate in multi-disciplinary and multi-cultural contexts, Meta-Cognition and digital acumen. EdTech can be a distinct role in the development of these skills.

A fundamental problem for politicians and policy makers is the acute shortage of qualified teachers and teachers leaving the profession. UNESCO predicts the worst ever global teacher shortage as set to reach a shortfall of nearly 69 million by 2030.

The highest concerted efforts and deployment of budgets will not solve this problem. Considering technology as the solution for the teacher shortage problem equally cannot be the answer. EdTech or Artificial Intelligence can’t replace teachers, but looking into solutions or approaches that consider EdTech to augment and enable teaching, allowing for new models and enhanced collaboration, removing administrative, marking and non-teaching-related burdens can no longer be ignored.

These pressing needs present huge opportunities for EdTech. However, it is unlikely that political appetite and context will allow for the required fast-paced adoption and transformation. Yet without a concerted and expert-informed and EdTech enhancement strategy, the endemic teacher shortage problem will present humanity with worrying economic, health, technology and climate challenges and increasing volatility.

SMART EDTECH

Tackling the 21st-Century education challenges will no doubt rely on an increased and transparent introduction of AIED, VR and Intelligent or Smart Virtual Reality (IVR), or AI-enabled AR. These technologies don’t represent an outlandish and distant future, they are available today and evolving at tremendous speed.

Adaptive learning technologies are already in use. These still tend to focus on remedial learning activity resulting from measuring of student’s progress and non-teaching-related burdens can no longer be ignored.

Without recognizing context and an insight into pedagogy and domain or subject knowledge and the learner’s cognitive ability or learning science, such learning solutions are likely to remain a smart technology, rather than be learner-enhancing. To have impact and come to fruition, it will become increasingly vital for EdTech to have an in-depth holistic understanding of teaching and learning for learner-centred design, in multi-disciplinary collaboration with engineering and usability expertise.

Advances in AIED will lead to new modes of collaborative problem-solving and tutoring solutions enhancing individual as well as collaborative learning, supporting effective mapping of tutors or resources to learners, or orchestrating problem-solving scenarios for groups of learners that will benefit from carefully designed collaboration.

EdTech should enable teachers to focus on their teaching and designing more personalized learning interventions for learners to discover the joy and intrigue of learning. Rather than living in anxiety about tests and exams, embedded assessment and a focus on Meta-Cognitive Skills should enable today’s learners to address the challenges of tomorrow world and flourish living in it.

For teachers to benefit from the augmentation such EdTech developments bring, they will need to have developed a digital understanding and acumen, allowing them to deploy appropriate teacher-designed and EdTech adopted learning interventions. Without introducing EdTech to teacher education, this will not and cannot happen.

SUMMARY

As Technology progresses, the education necessary to utilise it effectively also grows, and education must adapt to keep up. In this way, technology and education are in a race. C.D. Goldin and L.F. Katz.

The introduction of EdTech is not without problems and raises fundamental educational, ethical, privacy and ownership questions, which cannot be explored with appropriate merit in this paper.

However, dealing with these questions will prove critical to address the divide between the fast-paced technology revolution and education. Not dealing with this gap with intent and speed will only result in its widening, negatively impacting on teaching and learning and the ability to deal with a challenging world.

Brave steps by EdTech players and other education stakeholders are required to engage in an increased collaboration to narrow this divide and empower education, for learning in the 21st Century to continue to take place in both analogue and digital modes that transparently intersect.

As educators, EdTech specialists or stakeholders we have a responsibility to education and its constituents. We have to ensure that learners are listened to and teachers have the tools to support their practice; allowing them to engage in meaningful dialogue and collaboration in an increasingly digital world, enabling them to thrive and carve their own futures supported by EdTech, a transparent enabler and facilitator.

SOURCES


Kean, A. 2015. The Internet is not the Answer. London: Atlantic Press.
The pictures throughout this report were chosen to represent children and teachers all around the world.