Digital learning and measuring impact: challenges and opportunities

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A simple aim: to persuade you that we still need to do much more to embed quality monitoring, evaluation, research and learning when using digital tech in education

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How long ago were all of these photos taken? c.5, c.10, c.15 or c.20 years ago?

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The Philippines

Ethiopia

Ghana

Yunnan, China

Mozambique

Kenya

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We have been using ICTs and digital tech in education and learning for decades

Livenet across University of London Colleges from mid-1980s

My mother used computers teaching primary children in the early 1980s

Why, after decades of implementation are we still unsure about the impacts and outcomes of “digital learning”?

And what do we need to do about this?

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Global Education Monitoring Report, 2023

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"evidence is mixed on its impact"

An example from the GEM report: a case study emphasising …

- The role of the ”international community”
- The role of the private sector
- A focus on being proud about technology inputs rather than learning outcomes

Country case studies: Egypt (GEM report, 2023, p.13

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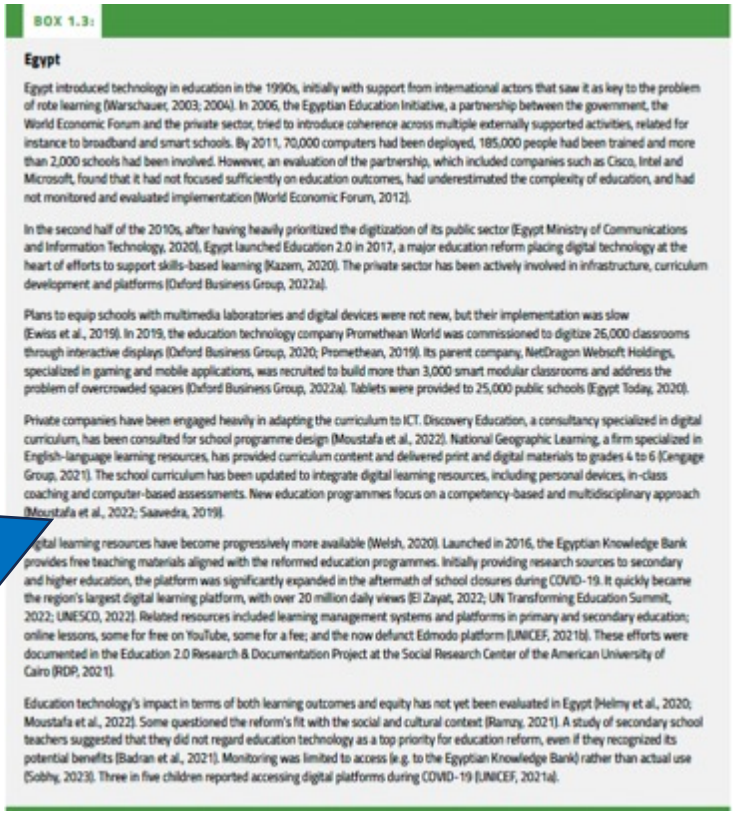
"Egypt introduced technology in education in the 1990s, initially with support from international actors that saw it as key to the problem of rote learning"

From the 2010s, "The private sector has been actively involved in infrastructure, curriculum development and platforms … The school curriculum has been updated to integrate digital learning resources, including personal devices, in-class coaching and computer-based assessments"

"Education technology's impact in terms of both learning outcomes and equity has not yet been evaluated in Egypt"



BOX 1.3:

Egypt

Egypt introduced technology in education in the 1990s, initially with support from international actors that saw it as key to the problem of rote learning (Warschauer, 2003; 2004). In 2006, the Egyptian Education Initiative, a partnership between the government, the World Economic Forum and the private sector, tried to introduce coherence across multiple externally supported activities, related for instance to broadband and smart schools. By 2011, 70,000 computers had been deployed, 185,000 people had been trained and more than 2,000 schools had been involved. However, an evaluation of the partnership, which included companies such as Cisco, Intel and Microsoft, found that it had not focused sufficiently on education outcomes, had underestimated the complexity of education, and had not monitored and evaluated implementation (World Economic Forum, 2012).

In the second half of the 2010s, after having heavily prioritized the digitization of its public sector (Egypt Ministry of Communications and Information Technology, 2020), Egypt launched Education 2.0 in 2017, a major education reform placing digital technology at the heart of efforts to support skills-based learning (Kazem, 2020). The private sector has been actively involved in infrastructure, curriculum development and platforms (Oxford Business Group, 2022a).

Plans to equip schools with multimedia laboratories and digital devices were not new, but their implementation was slow (Ewiss et al., 2019). In 2019, the education technology company Promethean World was commissioned to digitize 26,000 classrooms through interactive displays (Oxford Business Group, 2020; Promethean, 2019). Its parent company, NetDragon Websoft Holdings, specialized in gaming and mobile applications, was recruited to build more than 3,000 smart modular classrooms and address the problem of overcrowded spaces (Oxford Business Group, 2022a). Tablets were provided to 25,000 public schools (Egypt Today, 2020).

Private companies have been engaged heavily in adapting the curriculum to ICT. Discovery Education, a consultancy specialized in digital curriculum, has been consulted for school programme design (Moustafa et al., 2022). National Geographic Learning, a firm specialized in English-language learning resources, has provided curriculum content and delivered print and digital materials to grades 4 to 6 (Cengage Group, 2021). The school curriculum has been updated to integrate digital learning resources, including personal devices, in-class coaching and computer-based assessments. New education programmes focus on a competency-based and multidisciplinary approach (Moustafa et al., 2022; Saavedra, 2019).

Digital learning resources have become progressively more available (Welsh, 2020). Launched in 2016, the Egyptian Knowledge Bank provides free teaching materials aligned with the reformed education programmes. Initially providing research sources to secondary and higher education, the platform was significantly expanded in the aftermath of school closures during COVID-19. It quickly became the region's largest digital learning platform, with over 20 million daily views (El Zayat, 2022; UN Transforming Education Summit, 2022; UNESCO, 2022). Related resources included learning management systems and platforms in primary and secondary education; online lessons, some for free on YouTube, some for a fee; and the now defunct Edmodo platform (UNICEF, 2021b). These efforts were documented in the Education 2.0 Research & Documentation Project at the Social Research Center of the American University of Cairo (RDP, 2021).

Education technology's impact in terms of both learning outcomes and equity has not yet been evaluated in Egypt (Helmy et al., 2020; Moustafa et al., 2022). Some questioned the reform's fit with the social and cultural context (Ramzy, 2021). A study of secondary school teachers suggested that they did not regard education technology as a top priority for education reform, even if they recognized its potential benefits (Badran et al., 2021). Monitoring was limited to access (e.g. to the Egyptian Knowledge Bank) rather than actual use (Sobhy, 2023). Three in five children reported accessing digital platforms during COVID-19 (UNICEF, 2021a).

Why aren't we reading something such as this?

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Country _____

Expenditure by the government of [illegible] over five years on locally specific usage of d[illegible]wn that:

- 62% of children le[illegible]native language, mathemat[illegible]npared with only 38% using [illegible]
- 72% of teach[illegible] to have excellent or good job satisf[illegible]sly)
- 65% of se[illegible]reviously most marginalised com[illegible] the skills necessary to gain employment ([illegible]sity) as a direct outcome of our enhanced digital learning program[illegible]s

Focus on learning outcomes not technology inputs

Need for a change from emphasis on

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Digital tech inputs

to

Learning outcomes

There is no excuse for not doing effective M&E (or MERL)

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- Good existing exemplars (some from a long time ago!)
  - *InfoDev* (2005)
  - UNESCO and World Economic Forum's *Partnerships for Education* (2012)
  - Evidence from the EdTech Hub (2020s)
- Central problem is that a fundamental assumption about digital tech is often promoted
  - That tech is inevitably good and will enhance learning
  - Clearly promoted by many in the private sector
- The word "EdTech" places the emphasis on the technology and not the education
- Tech inputs are easy to count
  - And a way that governments can claim to be doing something visible

But it's complex! Tom Cassidy's (2012) model of World Economic Forum's GEI

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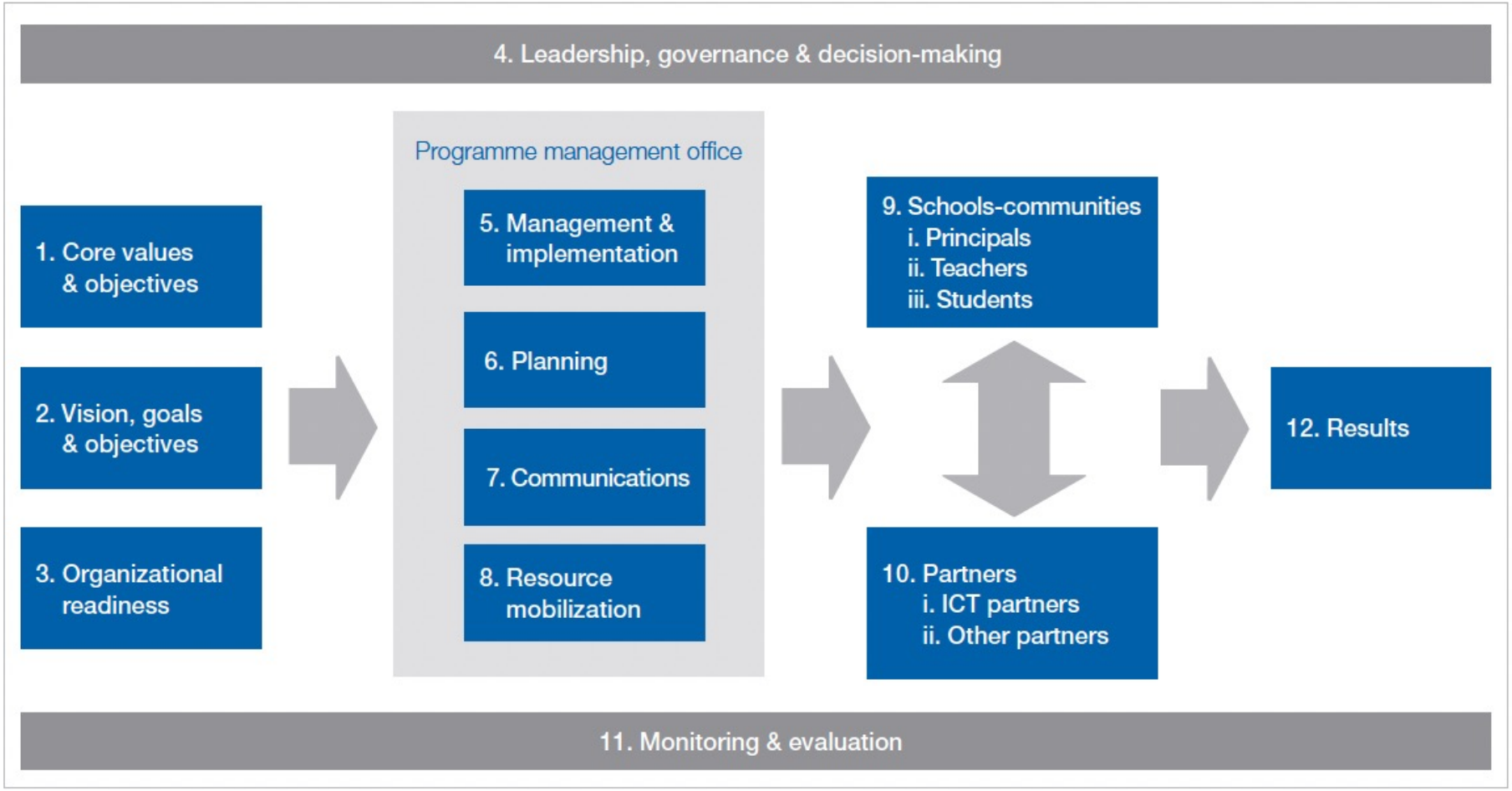

Three of the most important challenges limiting rigorous M&E

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1. Insufficient rigorous baseline studies focusing on learning outcomes
2. Insufficiently detailed financial models
   - Essential for value for money measures
3. An approach that does not compare "like with like"

1. Why are there insufficient rigorous baseline studies focusing on learning?

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- EdTech usually driven by private sector
  - With particular interests (often sales led)
- Lack of clear strategy, intention and objectives
- Lack of sufficient funding allocated to M&E
- Lack of knowledge about what to try to measure
  - No excuse!
- Emphasis on quantitative counting rather than qualitative understanding
- In too much of a hurry to show educational impact
  - Digital tech can be counted on the ground
- Extremely difficult to measure learning outcomes and attribute causality
- Unintended consequences often ignored

2. Insufficient sufficiently rigorous financial models

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- Must recognise complexity
- Must include all partner costs
- Must include set up, running/repair, and renewal costs
- Should also include opportunity costs
  - Wasted space/time when tech not in use
- Hardware, connectivity and electricity, content creation and delivery, LMS, management processes, environment..

Costs need calculating for every "partner" involved	Set up cost	Running costs/ repair	Renewal costs	Totals
Digital Hardware				
For teachers/Facilitators/ administrators				
For learning spaces				
For learners				
Connectivity				
For teachers/Facilitators/ administrators				
For learners				
For learning places				
Content development				
For teachers/Facilitators/ administrators				
For learners				
Regular renewal and revision				
Content delivery				
LMS design and development				
Hosting servers				
Management				
Project Management Office				
Needs assessment				
Monitoring				
Evaluation				
Environmental impact				

(Unwin, 2023)

3. Fundamentally flawed approaches to M&E are common

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- Not picking the "low hanging fruit"

"How do you know that if I spend money on this it will be better than spending it on something else"

Source: Education Minister of an Indian State in late 2000s

Let’s not forget the reality of many schools today

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Two concluding reflections

- The “me syndrome”
- Environmental impact

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Can we afford the “me syndrome” that also reduces focus on M&E?

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- Self(ish) individualism
- The need to be first
- Overconfidence in own excellence: “I know best”
  - No need for monitoring and evaluation
- Having great qualifications so must know the truth
  - But perhaps the qualifications are not so great after all!
- Brought up within the power and culture of non-self-critical scientism
- A self-congratulatory culture (illustrated by awards processes)
- Competitive rather than communal culture
  - Although OER community may be a striking exception
- Very dangerous when combined with the “innovation fetish”
  - Enjoys making mistakes in the belief that they will learn from them
  - Very expensive for others, especially in the international development context

THE EDTECH COOL TOOL AWARDS

EdTech Heroes

GESAwards 2023 Innovation

And need to consider the environmental impact of using digital tech in education

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- This goes far beyond “just” impact on carbon emissions and e-waste
  - Although these are bad enough
- Almost completely ignored in tech in education M&E
- Business models of tech sector are often anti-sustainable
  - “Fast fashion” – when did you last buy you device?
  - Right to repair
- Need for a holistic approach to understanding

Data Centre, Nairobi, 2015

If we don't pay enough attention to rigorous monitoring and evaluation…

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- We will continue not to know what really works in enhancing learning outcomes
  - But perhaps that does not really matter to many people
- Wasting significant amounts of money on digital initiatives that are unsustainable and fail
- Young people in danger of being enslaved into a world deliberately created by the digital barons
  - We are but "data" for AI systems
- Likely to exacerbate significant environmental harms
- Reinforcing the creation of an ever more unequal world

http://edtechreview.in/trends-insights/trends/3294-how-is-china-shaping-the-future-of-ai

We know how to do good M&E: let's just get on and do it

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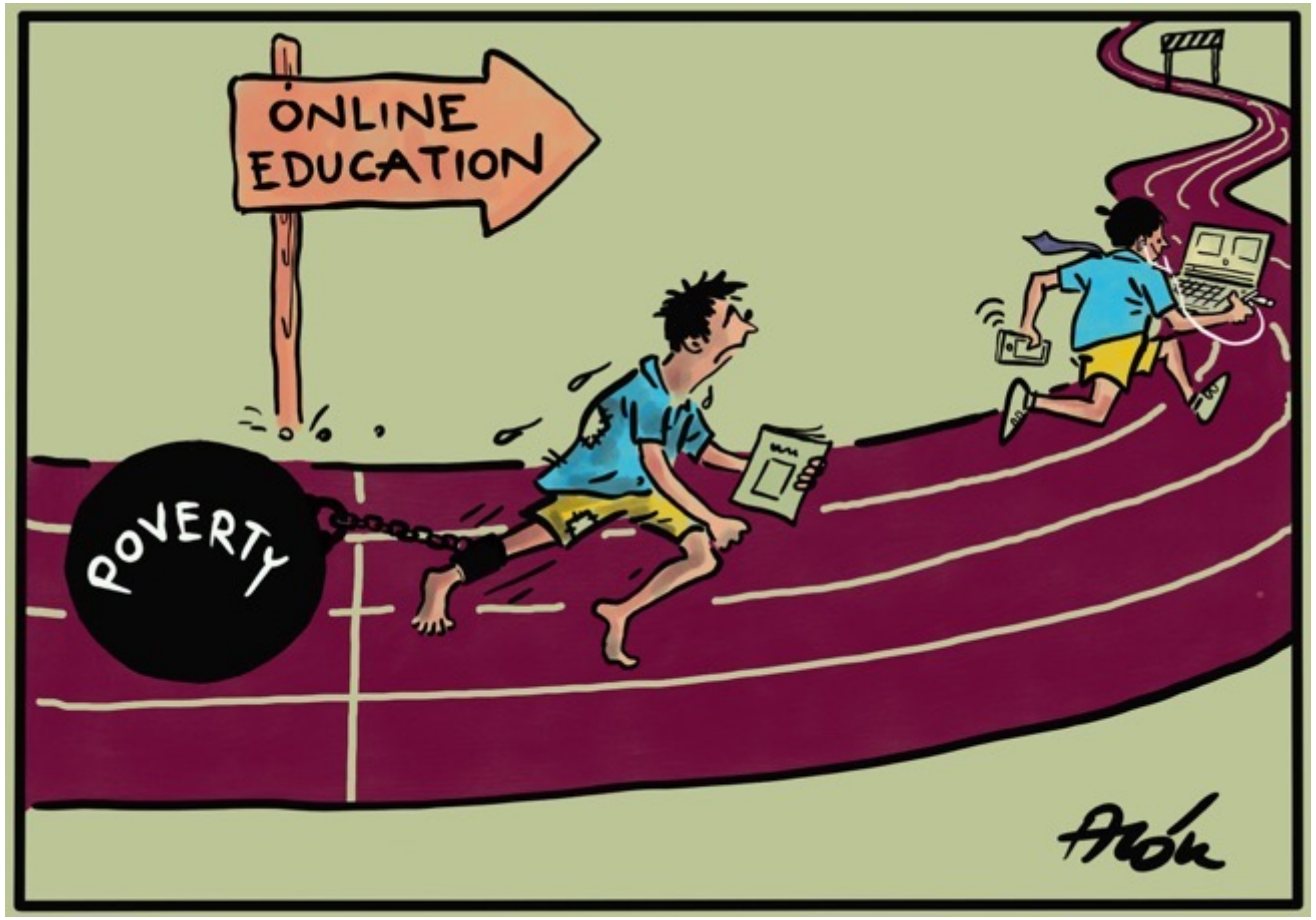

With thanks to Alok for letting me share his cartoon