The Role of Digital in Access to Secondary Education in the Asia Pacific

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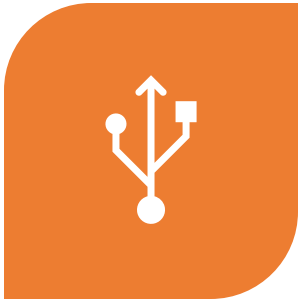
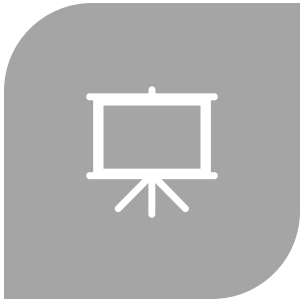
Agenda



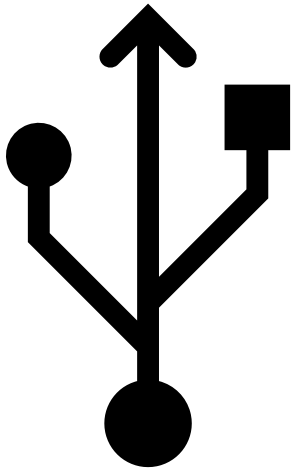
1: PAST INTERSECTIONS OF TECH, SCHOOLS, AND ACCESS



2: CHAOTIC PRESENT: WHAT HAS BEEN ACCELERATED AND WHAT THAT EXPOSED

3: FUTURE: IMPLICATIONS FOR ACCESS, AGENCY, AND NEXT STEPS

Premise



- Access is complicated
- Technology in and of itself does nothing
- It is just as likely to accelerate/amplify/reinforce a divide as mitigate one
- Language matters a great deal in how this is framed: scale, continuity, closure, outcomes, quick fixes
- Technology acquisition without teacher/ community training and engagement is a waste of resource

Digital technology alone does not transform education

"...despite talk of 'computers blowing up the school' and mass-scale 'open' learning, the main institutional structures of education have remained relatively intact over the past 40 years –even amid the substantial disruption of the pandemic. Schools, colleges and universities continue to be dominant providers of compulsory and post-compulsory education, and long-established face-to-face classroom routines continue. Education at all levels continues to be shaped by matters of curriculum, assessment and work-related skills. Despite the increasing visibility of digital devices and online systems, the essence of traditional education forms remain intact."

Facer, K. & Selwyn, N. (2021), Digital technology and the futures of education – towards 'non-stupid' optimism.

1:Past intersections of technology, schools, and access

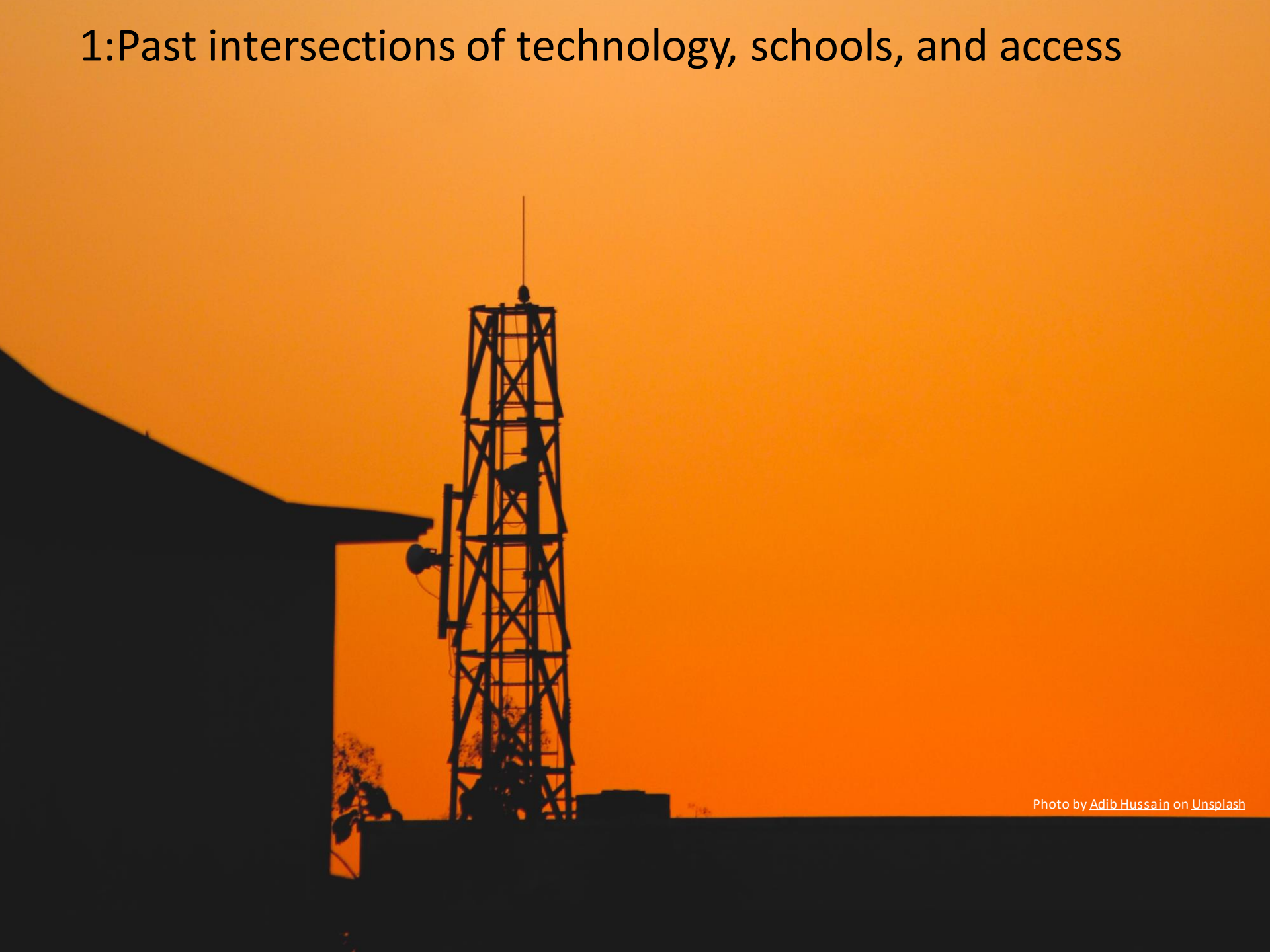
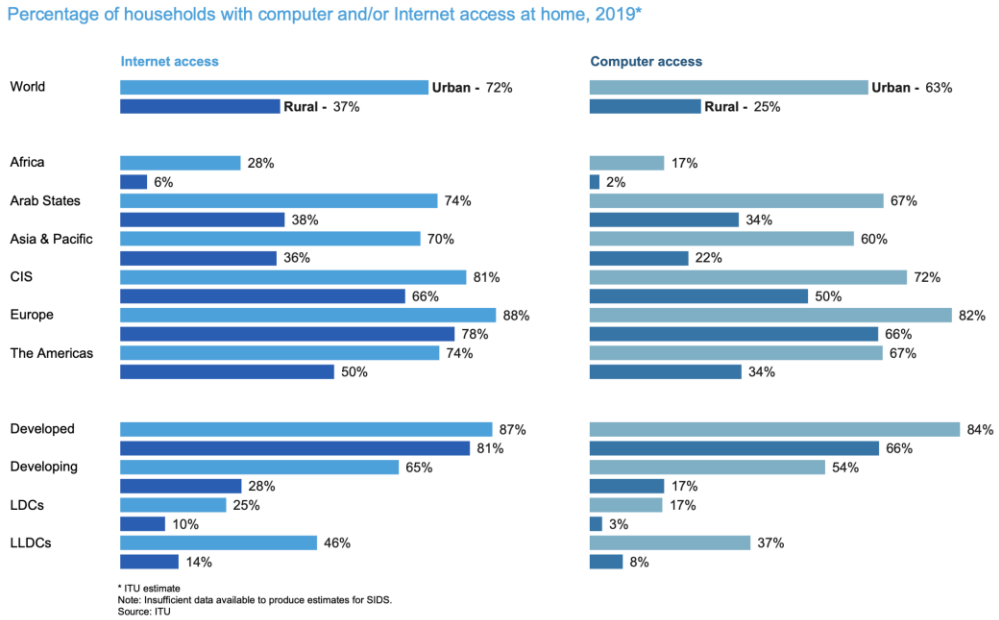


Photo by Adib Hussain on Unsplash

1: Tech ownership and use



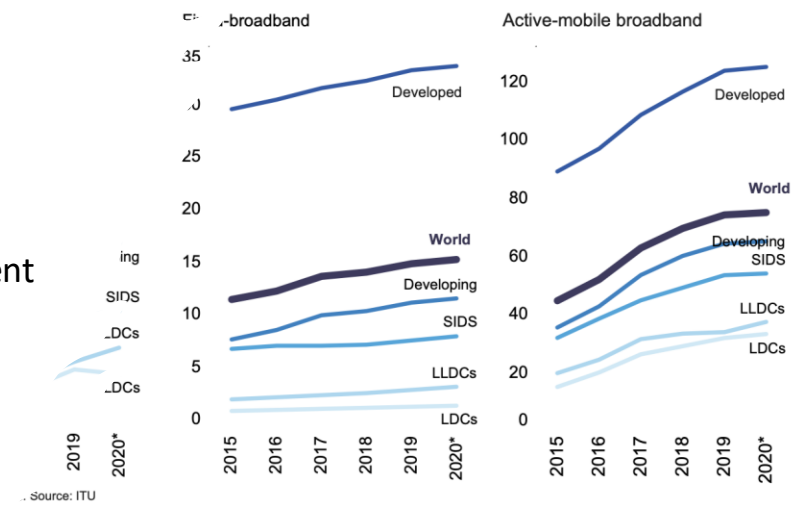
ITU (2020). Measuring digital development Facts and figures.

1: Tech ownership and use: uneven and even declining

ITU (2020). Measuring digital development Facts and figures.

-cellular subscriptions declining in 2020

riptions per 100 inhabitants, by development status



Source: ITU

The total number of mobile-cellular telephone subscriptions declined for the first time in history.

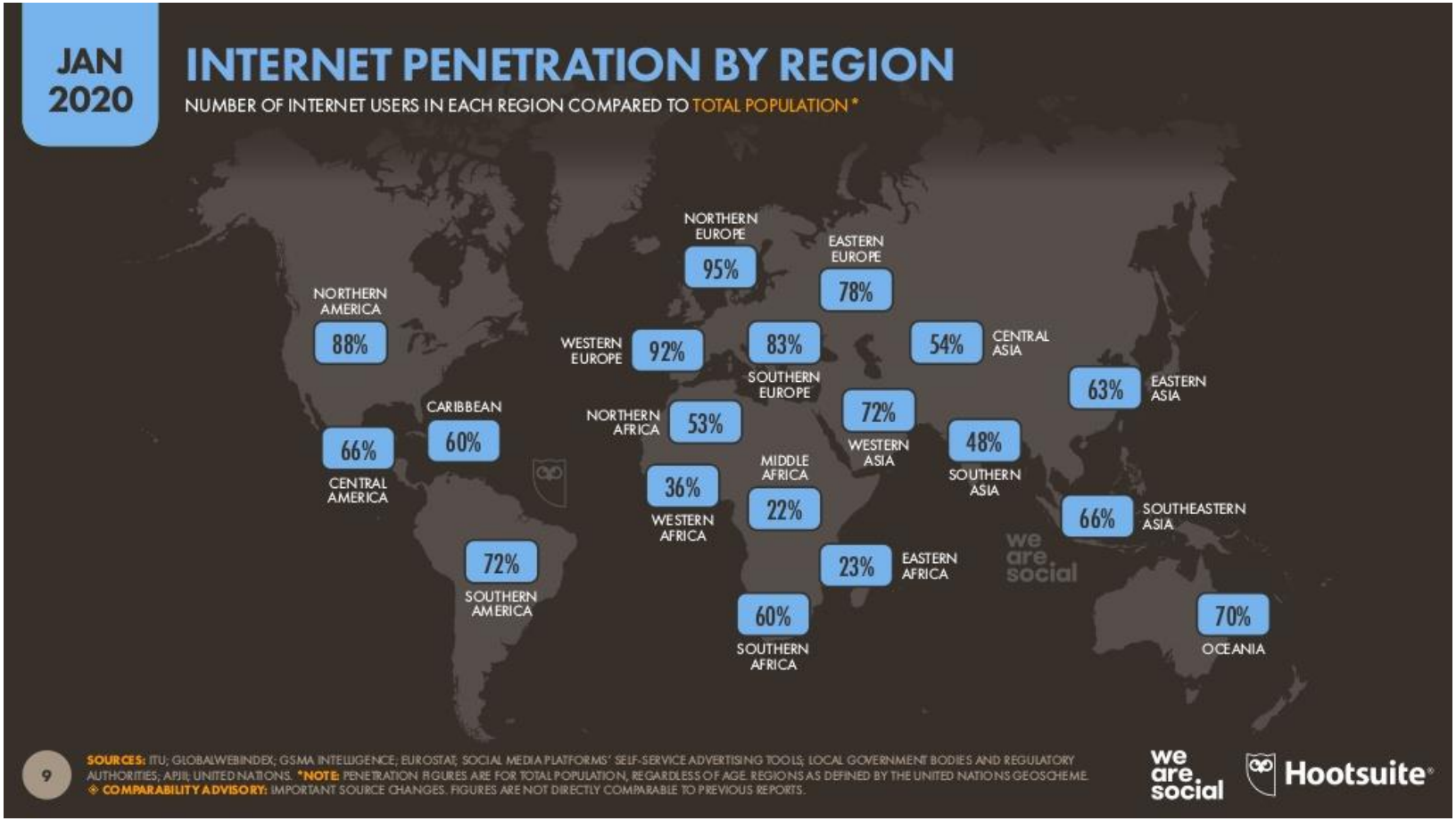
Further research is needed to understand whether this is caused by the disruptions related to the COVID-19 pandemic, or whether this can be explained by other socio-economic forces.

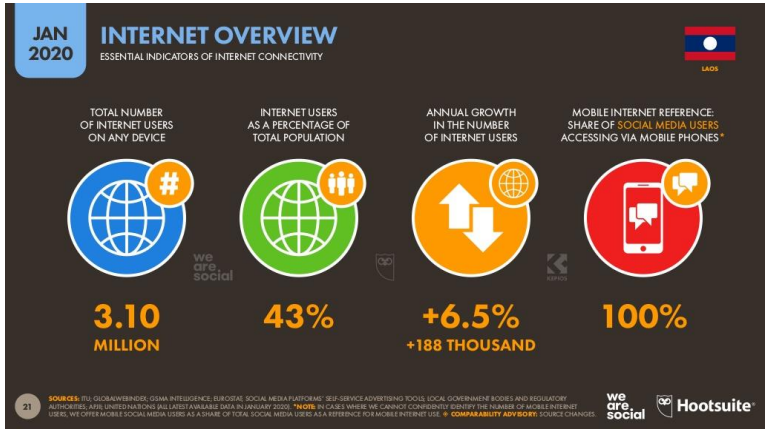
In the middle of 2020, there were an estimated 105 mobile-cellular subscriptions per 100 inhabitants, down from 108 in 2019.

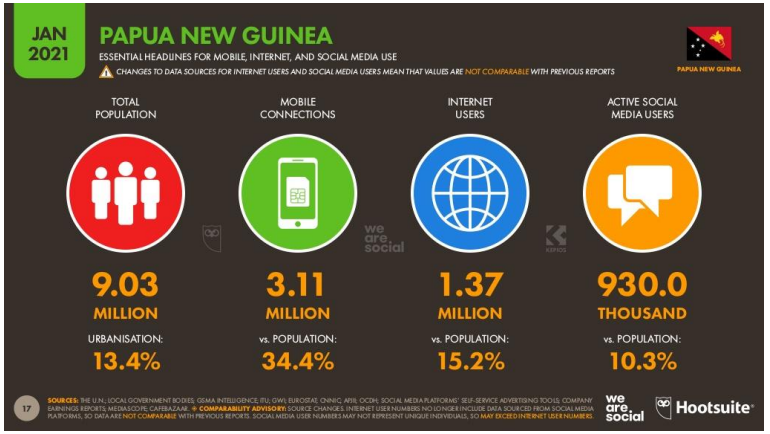
This decline was driven by developing countries, where the number of subscriptions went down from 103 in 2019 to 99 in the middle of 2020.

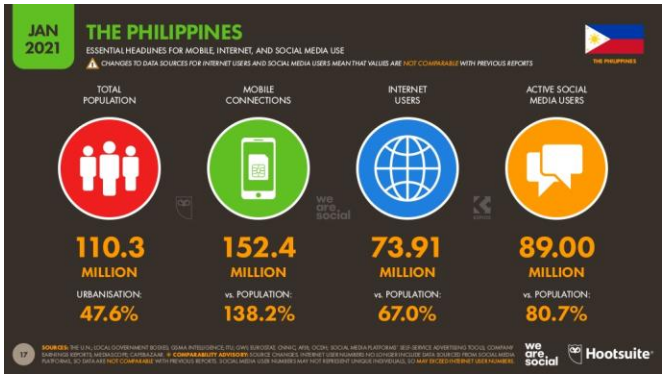
In developed countries though, the trend was still upwards.

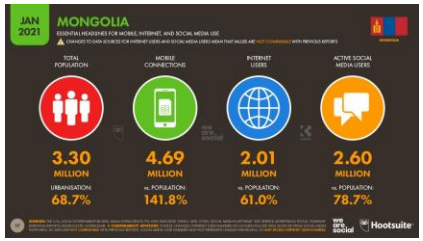
Internet access is uneven

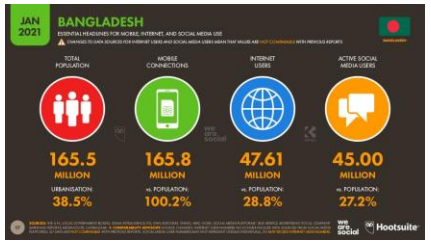












https://datareportal.com

1: Past intersections between tech and education

One Laptop Per Child

Low-cost private schooling: market creation

Schools in a box

Tech drops, tech dependency, and tech solutionism to the issue of access

1: One Laptop Per Child

"To create educational opportunities for the world's poorest children by providing each child with a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning. When children have access to this type of tool they get engaged in their own education. They learn, share, create, and collaborate. They become connected to each other, to the world and to a brighter future." (OLPC, Asia)

- Ushered in an era of solutionism
- Increasingly echoed in policy, strategy

Carla Gomez Monroy in the capital of Mongolia; Ulaanbaatar.

1: Low-fee private schools, academies in a box, and market creation

"The academy-in-a-box model is a 'vertically-integrated system' (BIA, 2016a) in which the entire supply-chain is streamlined by BIA—from academy construction to advertising materials to curricula content to teacher training to pedagogy…On the instructional side, pre-programmed curriculum is developed by BIA at corporate headquarters abroad and then sent electronically to each school site using web-enabled smartphones that transfer curriculum to tablet e-readers, which is then read out verbatim, word-for-word, to students by unqualified staff referred to as 'Learning Facilitators'.

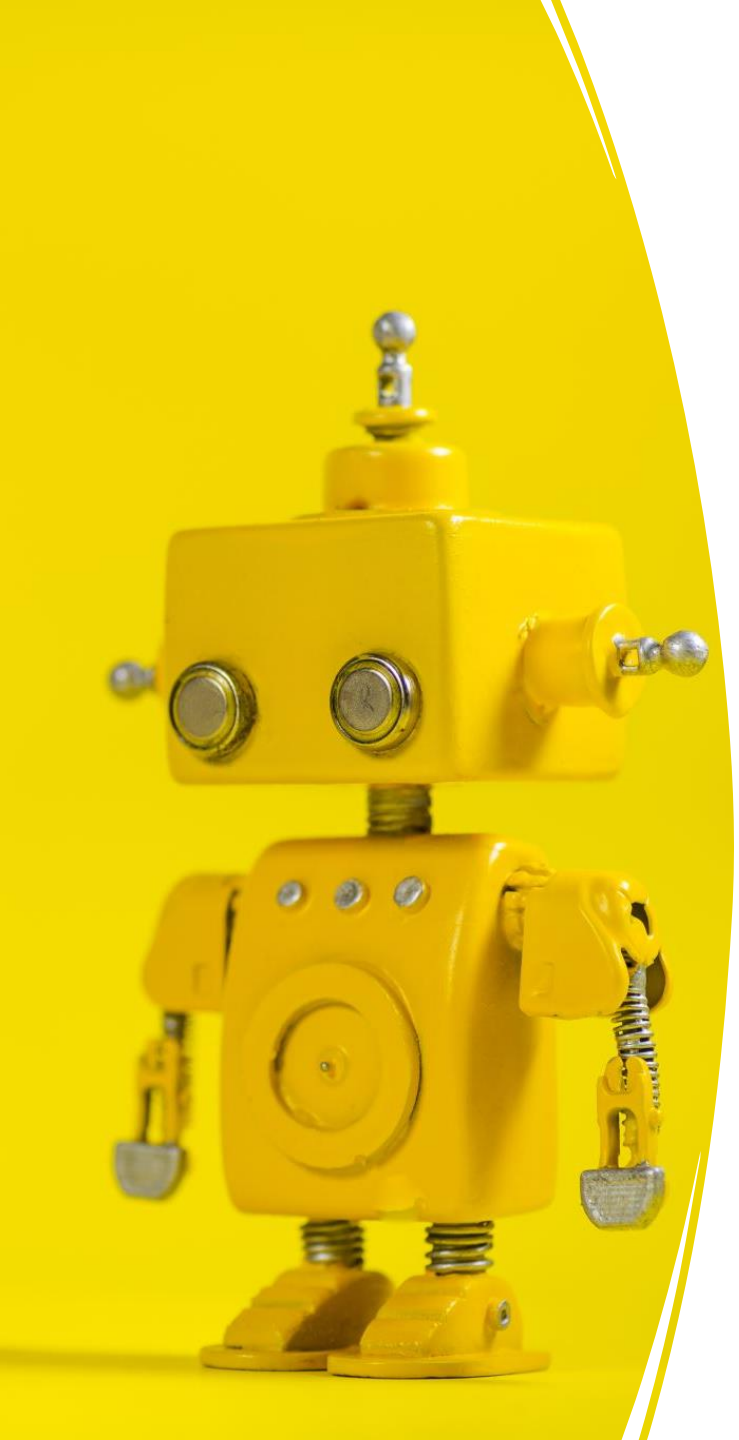
Characterised by

- tech dependency focused on measures of scale and efficiency
- teach by numbers

Riep (2019). What do we really know about Bridge International Academies: a summary of research findings.

1: Schools/Teaching Kits in a box

- Samsung, Brck, and more
- Access framed not as school/teacher access but as technology/internet/ content access



1: Imaginaries of educational technology

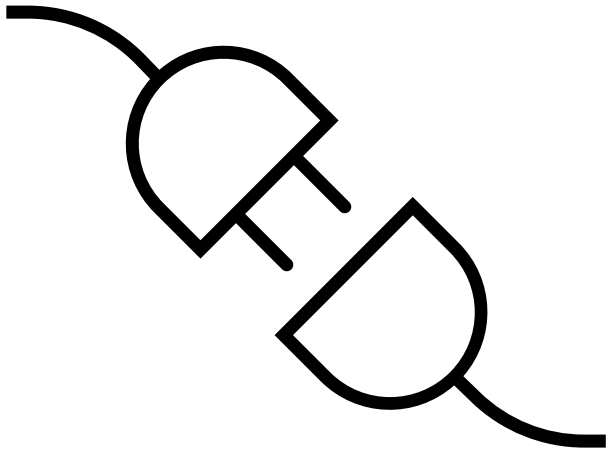
- Increasingly framing the discussion of access
- Massive investments on the end of these imaginaries
- Nexus of non-educational actors increasingly bound in educational decision-making

1: Linked to SDGs

- Increasingly linked via language of scale and access
- Nexus of policy pressure, third party servicing of targets, language around technology picked up in national policy/strategy
- Sustainable Development Goal 9, which concerns industrialization, innovation and infrastructure, recognizes the importance of ICTs and establishes Target 9.c, to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020" (UN, 2015).

ITU (2018). ICTs, LDCs and the SDGs: Achieving universal and affordable Internet in the least developed countries.

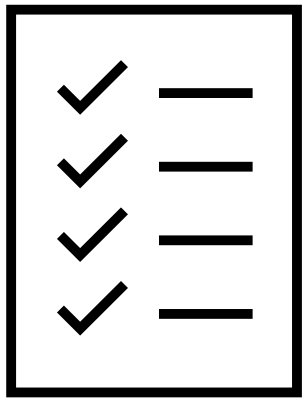
1: Mirrored in targets/goals

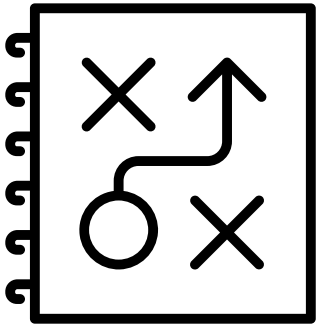


Education 2030

- Provide distance learning, ICT training, access to appropriate technology and necessary infrastructure to facilitate a learning environment at home and in conflict zones and remote areas, particularly for girls, women, vulnerable boys and youth, and other marginalized groups.
- Provide teachers with adequate technological skills to manage ICT and social networks, as well as with media literacy and source criticism skills, and provide training on how to address challenges of pupils with special education needs.
- Information and communication technologies (ICTs) must be harnessed to strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more effective service provision.

Education 2030: Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning... (2016).

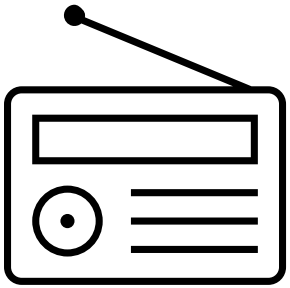


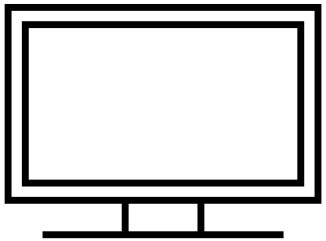


1: Echoed into policy, strategy, notes, reports

1. Response: How can education and training systems **sustain** teaching and learning during closure of education institutions due to the COVID-19 outbreak (3–10 months)?
2. Recovery: How can education and training institutions prepare for the recovery phase when they reopen, **makeup** for lost time for students, and enable their **transition** to higher levels of education or their entry into the job market (6–24 months)?
3. Rejuvenation: How can education and training institutions undertake initiatives in response to the crisis to **rejuvenate** teaching and learning with new tools and techniques, particularly expanding online education to complement face-to-face learning in pedagogically effective ways, and deploying new technologies to improving the quality of learning (8–36 months)?

Asian Development Bank (2021). Covid-19 and Education in Asia and the Pacific.





1: Codified into recommendations, priorities and targets

Six overarching priority actions are recommended in deploying digital strategies to address COVID-19 to ensure focus on learning:

1. Sustain **uninterrupted** learning through alternative and flexible approaches using multiple channels and platforms, including online, mobile phones, TV/radio, and printed materials to ensure a learning environment to where students are located.

2. **Revamp teacher training** and support teachers to cope with the requirements in new learning environments, including medium- to long-term professional development to integrate the use of digital tools in traditional teaching and learning practices.

3. Develop high-quality digital **content** in partnership with national and global institutions and drawing on regional and global standards.

4. Ensure **equal learning opportunity** for students who lack access to devices, connectivity, and a favorable learning environment at home through adequate social protection measures and other mechanisms.

5. Articulate clear policies toward **assessments and examinations**, certifications, and transition to higher levels of education, while formulating new approaches to testing and examination.

6. Provide for innovative financing arrangements and partnerships to support innovations and pilot new approaches and invest in capacity building through twinning arrangements between institutions to draw on lessons learned from other countries to facilitate **scaling up deployment of new technologies to improve learning.**

Asian Development Bank (2021). Covid-19 and Education in Asia and the Pacific.

1: Accelerated commercially

"Even before COVID-19, there was already high growth and adoption in education technology, with global edtech investments reaching US$18.66 billion in 2019 and the overall market for online education projected to reach $350 Billion by 2025."

"The EdTech and smart classroom market in APAC is expected to grow from US$ 17,692.4 million in 2019 to US$ 64,353.4 million by 2027; it is estimated to grow at a CAGR of 17.5% from 2020 to 2027."

Each carries with it a particular imaginary of education; each makes a certain kind of pedagogy possible.

In five years, the classroom will learn you.

TODAY, NEARLY 2 IN 3 ADULTS WORLDWIDE HAVEN'T ACHIEVED THE EQUIVALENT OF A HIGH SCHOOL EDUCATION.

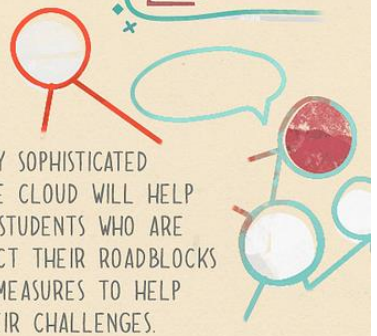
THE CLASSROOM OF THE FUTURE WILL LEARN ABOUT INDIVIDUAL STUDENTS OVER THE COURSE OF THEIR EDUCATION AND HELP THEM MASTER THE SKILLS CRITICAL TO MEETING THEIR GOALS.

THE CLASSROOM WILL CREATE A SYLLABUS BASED ON INDIVIDUAL LEARNING STYLE AND PACE, NOT ON AN ARBITRARY TEACHING SCHEDULE.

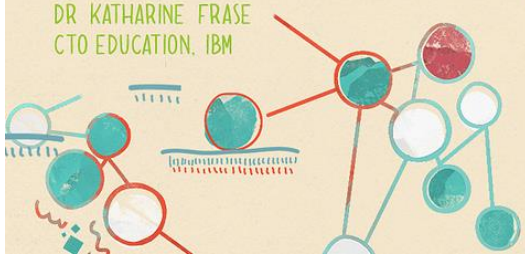
THIS SYSTEM WILL LEVEL THE PLAYING FIELD BY ENSURING THAT BARRIERS TO EDUCATION BECOME LESS OF A FACTOR FOR SUCCESS.

"IN FIVE YEARS, THE CLASSROOM WILL LEARN ABOUT EACH INDIVIDUAL STUDENT, AND PROVIDE A TAILORED CURRICULUM FROM KINDERGARTEN THROUGH HIGH SCHOOL AND TOWARD EMPLOYMENT."

DR KATHARINE FRASE
CTO EDUCATION, IBM



A SYSTEM FUELED BY SOPHISTICATED ANALYTICS OVER THE CLOUD WILL HELP TEACHERS IDENTIFY STUDENTS WHO ARE MOST AT RISK, PREDICT THEIR ROADBLOCKS AND THEN SUGGEST MEASURES TO HELP THEM OVERCOME THEIR CHALLENGES.



IBM

BrainCo's Focus EDU provides the world's first integrated solution to quantify real-time student engagement during class.

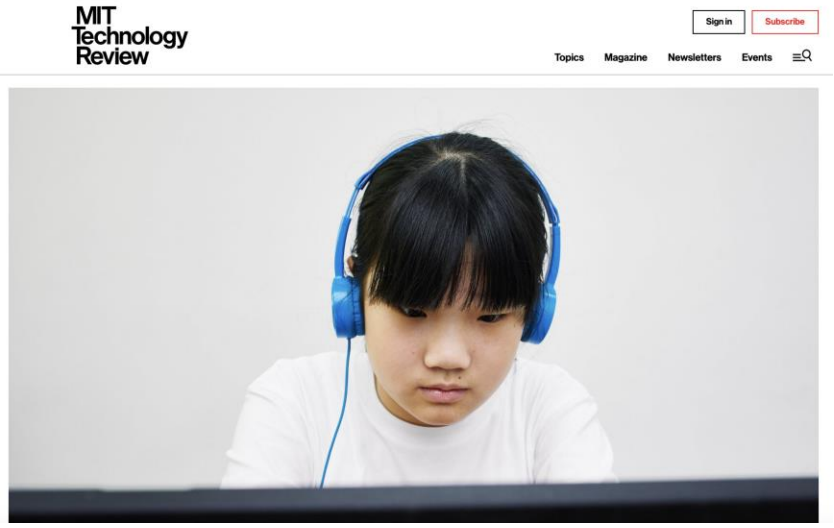
By combining BrainCo's brainwave-detecting headbands and software platform, educators can track students engagement and class attention levels on a real-time basis.

Ben Williamson @BenPatrickWill 1d

With the OECD and all the major global policy influencers pushing social-emotional learning as the solution to workforce automation, expect massive growth in next few years in student emotion detection research funding & commercialization of student affects

BrainCo

YOUR BRAIN CONTROLS EVERYTHING

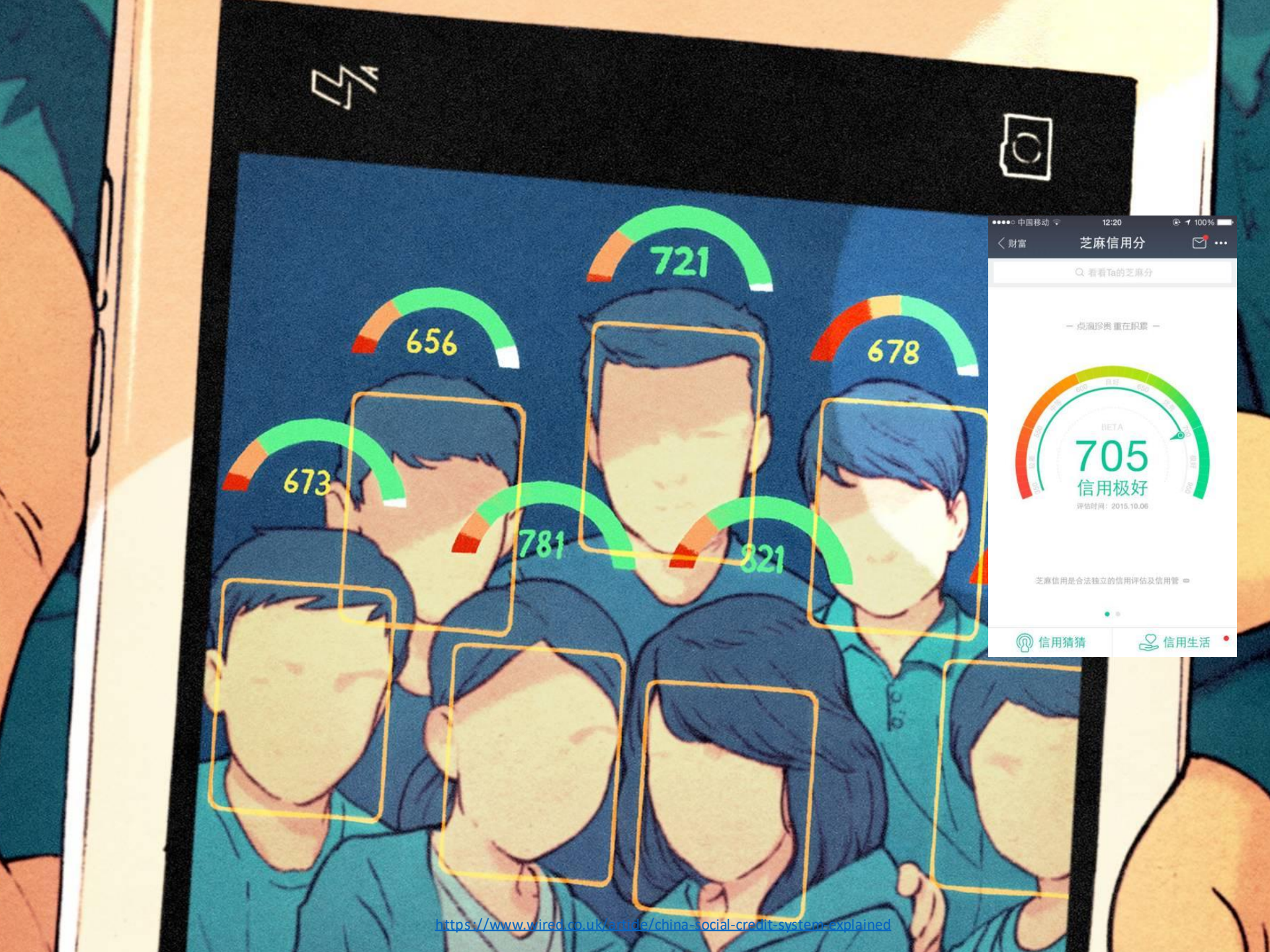


China has started a grand experiment in AI education. It could reshape how the world learns.

In recent years, the country has rushed to pursue "intelligent education." Now its billion-dollar ed-tech companies are planning to export their vision overseas.

by **Karen Hao**

Aug 2, 2019



https://www.wired.co.uk/article/china-social-credit-system-explained

DHS and UNHCR are Sharing Biometric Data of Refugees

Posted on August 23, 2019

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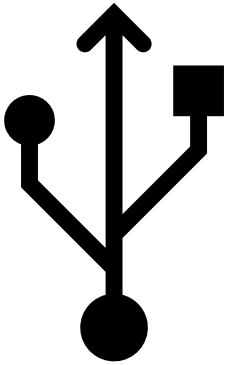
The US Department of Homeland Security (DHS) has been discreetly gathering the biometric information of tens of thousands of refugees, many of whom may never make it to America. According to a recent Privacy Impact Assessment, the information is being collected through a sharing arrangement with the United Nations High Commissioner for Refugees (UNHCR), which sends profiles to federal agencies when referring refugees for resettlement.

The profiles include biographic information like name and date of birth, in addition to face, fingerprint, and iris data. Those profiles



Emerging ID Technology Helps Refugees, at a Cost to Privacy

UNHCR and Zain Wallet use IrisGuard biometrics for refugee aid disbursement

Aug 23, 2019 | Chris Burt

CATEGORIES Biometrics News | Financial Services | ID for All | Iris / Eye Recognition

Iris biometric technology from IrisGuard is being used to provide identity verification for refugees in Iraq under a partnership between mobile wallet Zain Cash and the United Nations High Commission on Refugees (UNHCR).

Zain Cash is an Iraq-based mobile wallet, and subsidiary of regional telecom Zain Group, and will provide money transfer, electronic bill payment, and funds disbursement in Iraq with the new EyePay Cash platform, developed in partnership with IrisGuard. Iris

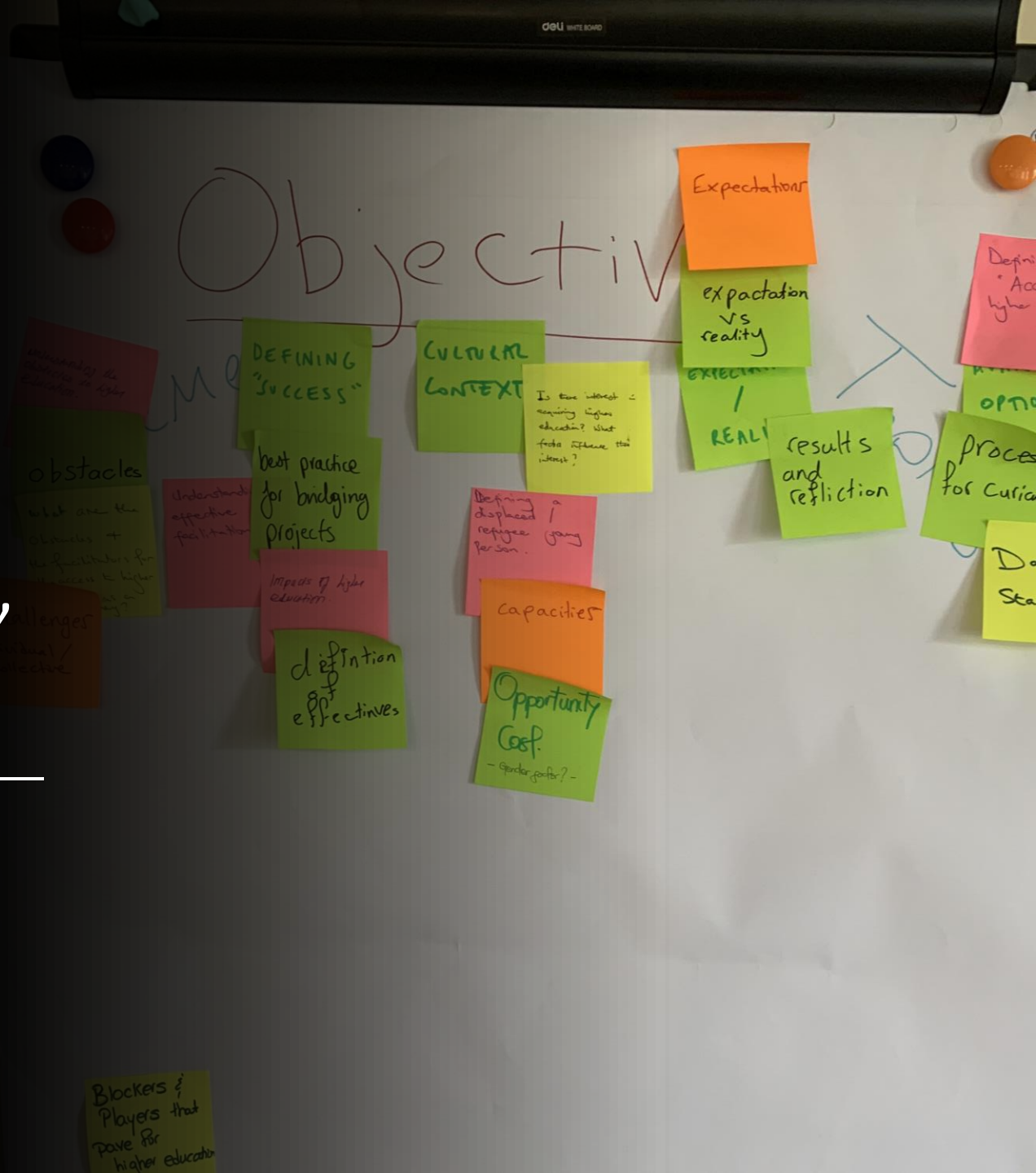
1: Yet...digital technology does not improve learning

"...there is little robust evidence that technology use leads to sustained 'improvements' in learning independent of teacher and other contextual effects...Those researchers who have attempted to pinpoint causal effects of technology use on learning tend to reach inconclusive findings."

"On one hand, a number of large-scale studies conclude that technology use is sometimes associated with modest improvements in learning performance (e.g. Chauchan 2017). On the other hand, a number of 'meta-analyses' find no difference, or even negative relationships (e.g. Kulik and Fletcher 2016; Clark et al. 2016; Setren et al. 2019). As a review of meta-analyses between from the 1990s and 2000s concluded: 'the correlational and experimental evidence does not offer a convincing case for the general impact of digital technology on learning' (Higgins et al.2012: 3)."

Facer, K. & Selwyn, N. (2021), Digital technology and the futures of education – towards 'non-stupid' optimism.

2: The chaotic present, acceleration, and access



2: Covid

- Closures and interruptions
- Adjustments
- (Amplifying) divides

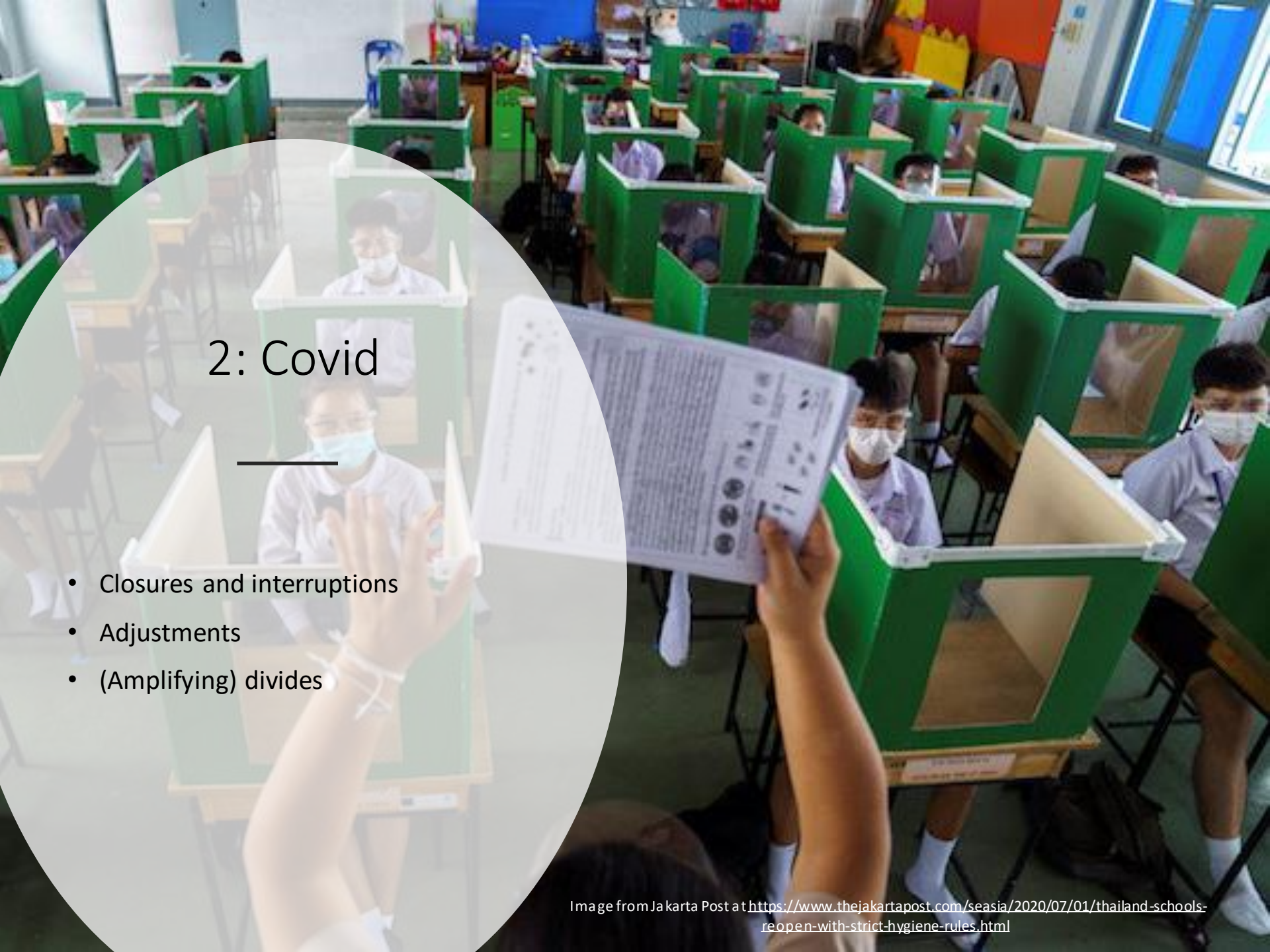
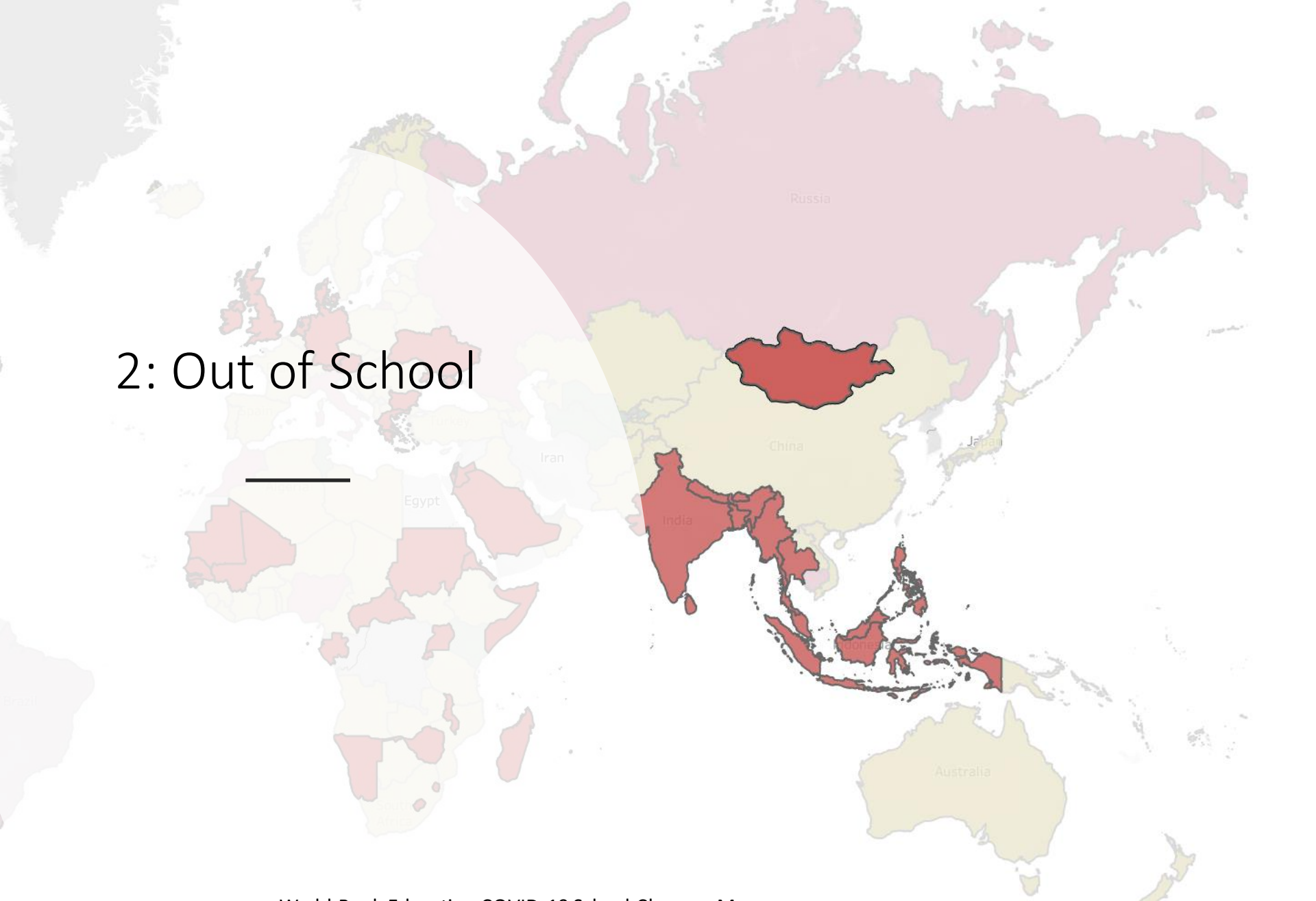


Image from Jakarta Post at https://www.thejakartapost.com/seasia/2020/07/01/thailand-schools-reopen-with-strict-hygiene-rules.html

2: Out of School



World Bank Education COVID-19 School Closures Map (2021). https://www.worldbank.org/en/data/interactive/2020/03/24/world-bank-education-and-covid-19

2: Infrastructure

MOBILE VS LAPTOPS

BROADBAND

2, 3, 4, **5G**

VAST URBAN/RURAL DIVIDES

2: Out of reach

"While 55% of low-income countries opted for online distance learning in primary and secondary education, only 12% of households in least developed countries have internet access at home. Even low-technology approaches cannot ensure learning continuity."

Noting how this is being reframed as **continuity**.

Facer, K. & Selwyn, N. (2021), Digital technology and the futures of education – towards 'non-stupid' optimism.

2: Public Private Partnerships

- Covid revealed significant divides in the connectivity, ownership, and use of technology
- Public private partnerships via schools, telecoms, governments
- Doesn't address the ownership issue
- Problematic

Poor, Rural Students in Laos Lack Tech to Learn From Home

2020-04-10

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A primary school in Pak Lay District, Xayaburi Province, Laos, pictured in 2019.

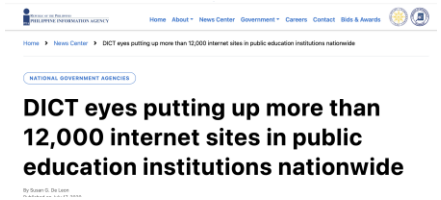
Viewpoint 15: The Cambodia Public Wi-Fi & Digital Schools Project

To help bridge the digital divide in Cambodia, Korea Telecom has worked in close partnership with the Ministry of Post and Telecommunications in Cambodia and Telecom Cambodia on a public Wi-Fi and digital schools project providing free Wi-Fi in public places. It has also launched a distance learning programme for underprivileged schools under the e-Education objective of the Cambodian ICT Masterplan 2020.

UK mobile operators urged to remove data costs for online learning

By Steve McCaskill 5 months ago

Education services could be zero-rated to ensure access as operators urged to ensure pupils have access to remote learning



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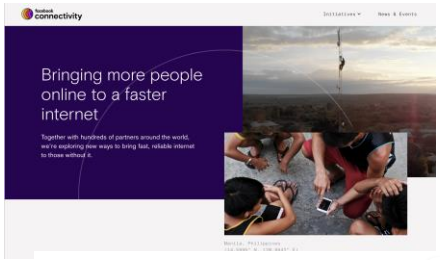
NATIONAL GOVERNMENT AGENCIES

DICT eyes putting up more than 12,000 internet sites in public education institutions nationwide



connectivity

Bringing more people online to a faster internet

Together with hundreds of partners around the world, we're exploring new ways to bring fast, reliable internet to those without it.

Bangladesh regulator orders telcos to stop providing free access to social media

Manish Singh @refsrc / 10:51 PM GMT+1 • July 21, 2020

Comment

MTN Uganda zero rates University online learning platforms

by EDGAR KAZIBWE MAY 13, 2020

A shopper walks past an MTN shop at a mall in Johannesburg, South Africa, March 2, 2017. REUTERS/Siphiwe Sibeko Credit: REUTERS

MTN Uganda has zero rated a number of Universities online learning platforms allowing students and lecturers free access to study at home during this period of the COVID 19 lockdown.

Mongolia Students Embarked on Remote Learning in Response to Covid-19

02/04/2020 2 min

Share this article

FES Mongolia: How has the coronavirus pandemic affected the education system in Mongolia?

Munkhbat: The Mongolian government took the pandemic very seriously from the outset. Thus, schools, kindergartens, and universities were closed as early as the end of January 2020 and remained closed until the upcoming academic year. Without any preparation teaching had to be done remotely. School children were taught through classes broadcasted on TV and universities used remote learning technology. Both had to be developed and implanted on extremely short notice which put a lot of stress on teachers, professors, and students. TV classes were especially challenging. Content had to be adjusted as well as shortened, programmes had to be produced and aired. The Ministry of Education cooperated closely and effectively with the Mongolian Television Association. Moreover, 13 private TV stations produced and broadcasted educational content almost free of charge.

Receiving education through TV was also challenging for parents and students. Parents had to make sure that their children were watching the educational programmes and students had to learn in a new and unfamiliar way that could be detrimental to their attention. Surveys revealed that students recall about 60-70 per cent of the content taught in person. We suspect that this number will be lower for TV classes. So, there is a comparative disadvantage for this generation of students.

We implemented a virtual classroom for universities, allowing lectures to continue, as well as over 35,000 multimedia classrooms for primary and secondary school pupils. These were supported by a teachers' portal to allow teachers to assist each other as they adapted.

But all of these programs have a limiting factor: internet access to every corner of Bangladesh. Although there were 66.44 million internet users in Bangladesh in January 2020 and the number of internet users in Bangladesh increased by 5.8 million (9.5 percent) between 2019 and 2020, we still haven't reached every part of the country.

This was where a hybrid analogue-digital strategy came into play, with the state broadcaster Sangsad Bangladesh Television broadcasting pre-recorded lessons. TVs are much more common than reliable internet connections, meaning this broadened access to education even more.

2: Interruptions and rethinking process

- Schools as sites of connection
  - Tech in classrooms?
  - Schools as sites of connectivity?
- Necessity of co-location
- (General) lack of teacher training
- Suggesting/emphasising access to content as key to quality secondary education

Photo: Amit Verma

3: Future models and alternatives

What is the future of the digital and secondary school access in the Asia Pacific?

“The idea of ‘the future’ as a singular, inevitable trajectory in the face of which educators and citizens have no agency, is also subject to critique”

Facer, K., & Sandford, R. (2010). The next 25 years?: future scenarios and future directions for education and technology. Journal of computer assisted learning, 26(1), 74-93.

Photo by SpaceX on Unsplash

3: Training teachers

"...as the primary actors for implementing the curriculum and orchestrating learning activities, teachers are likely to be even more central to learning with the adoption of ICT. Indeed, the success of using ICT for educational purposes relies heavily on teachers' abilities to select, create and manage adequate digital resources in order to implement innovative and inclusive teaching strategies in a specific context (Redecker, 2017)."

PISA 2021 ICT Framework

OER Asia
Open Educational Resources

The role of OER localisation in building a knowledge partnership for development: insights from the TESSA and TESS-India teacher education projects

Education 2030

ICT in SDG4

Targets	Key Indicative Strategies
4.4 Skills	Basic and ICT skills
4.5 Gender	ICT training, access to appropriate technology and infrastructure
4.6 Literacy	Promote the use of ICT, particularly mobile technology
4.a Facility	Access to ICT resources
4.C Teachers	Teachers with adequate technological skills to manage ICT

- SDG 4.4.1 proportion of youth and adults with ICT skills
- SDG 4.a.1 proportion of schools with access to the Internet and computers for pedagogical use.

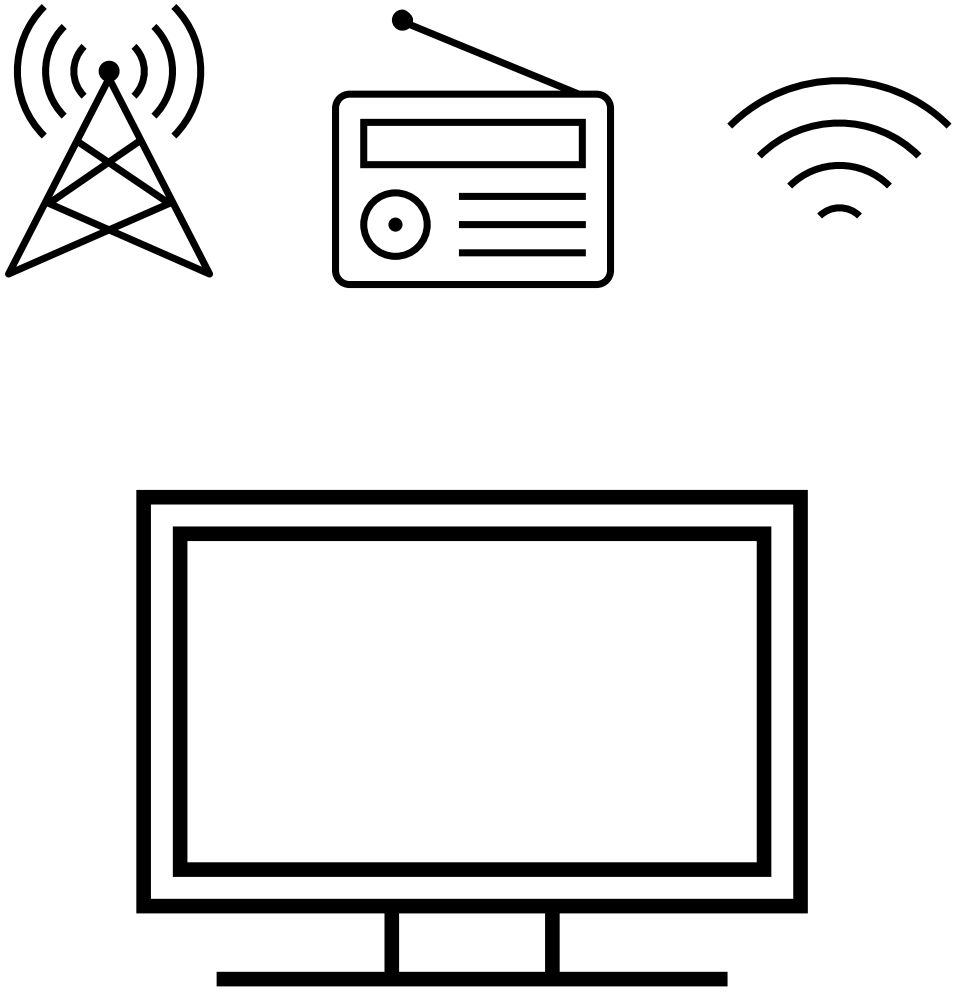
3: Pedagogy

"Education at its core is a social endeavor and **teachers must be empowered** to use technologies to engage students in learning. Teacher support and training on use of remote learning technologies and adaptations to pedagogy are essential. A combination of multiple modes of delivery (offline/online/blended) are more likely to be effective with a focus on pedagogy and not just use of technology. As **parents and caregivers become an essential point of engagement with students**, simply making content available is not enough. Parents must be engaged as partners in the learning process and a responsible actor in a blended learning environment."

WBG (December 2020). Digital Technologies in Education.

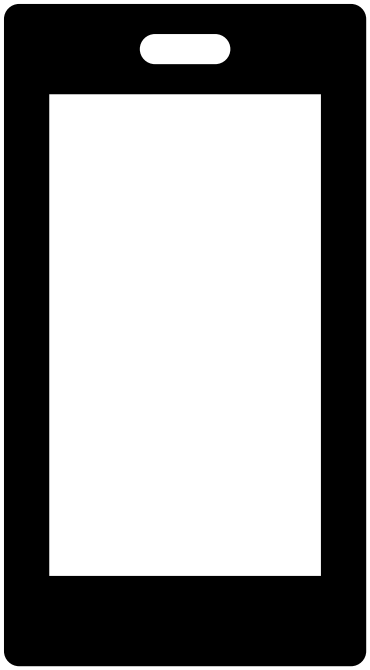
3: (Ongoing) Public Private Partnerships

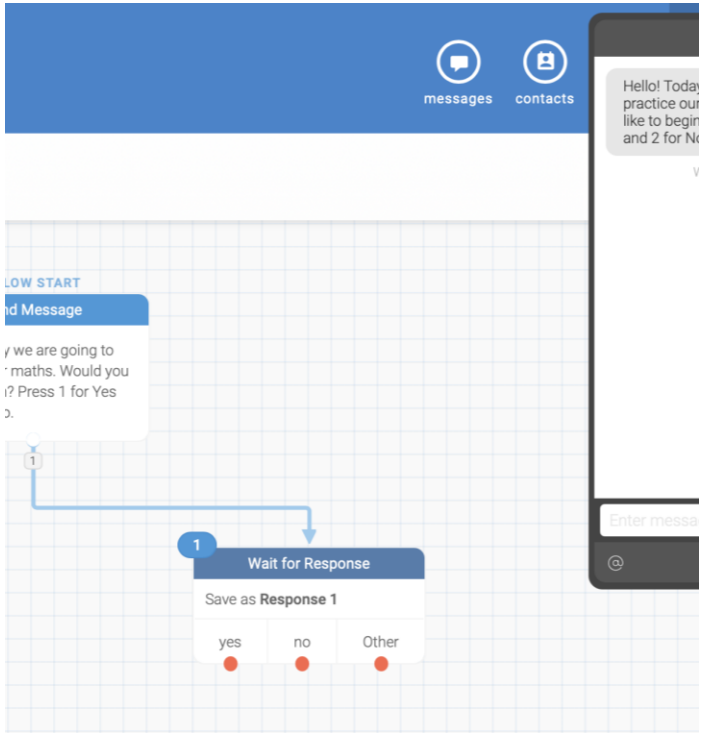
- Connectivity across range of technological spectrum; not a binary
- Daisy-chained accessible technologies
- Still divides in this approach



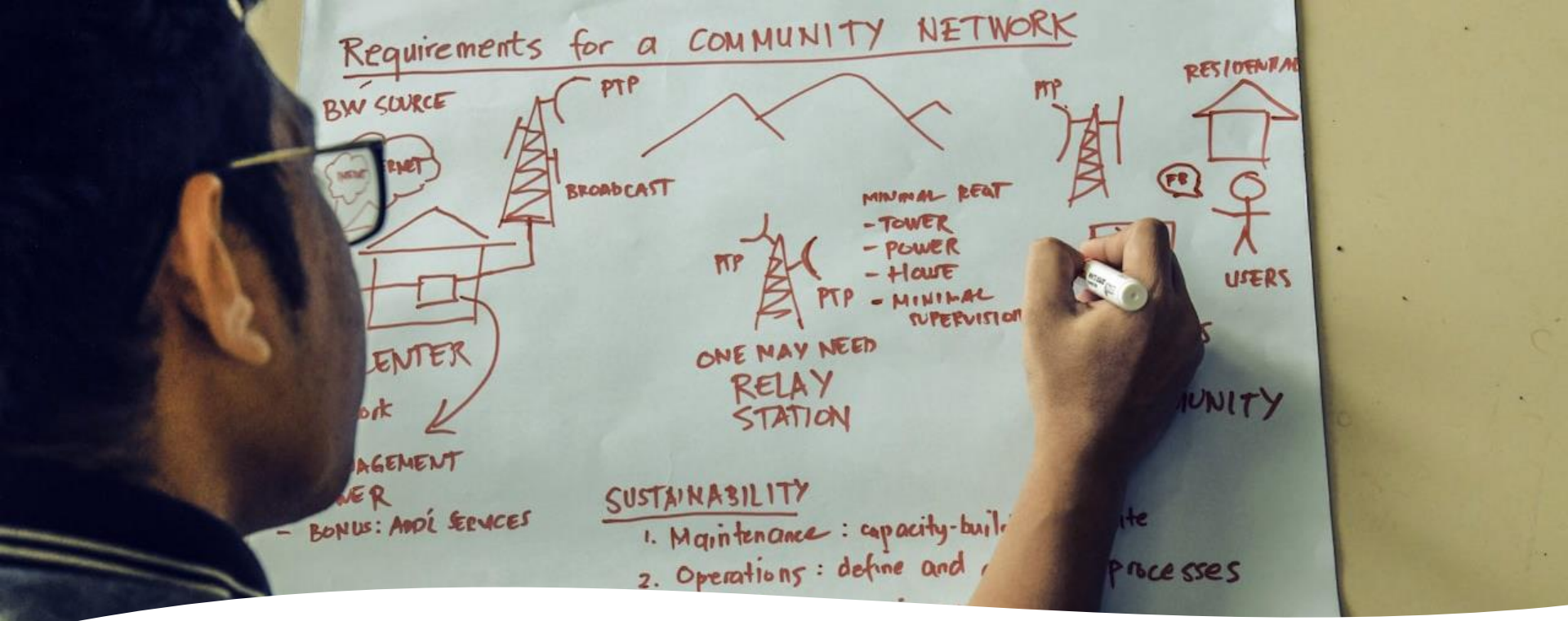
3: Mobile first

- Design for mobile
- Strongest with literacy, numeracy, supplemental instruction
- Linked to broader efforts around digital inclusion
- Data costs are issue; look for offsets





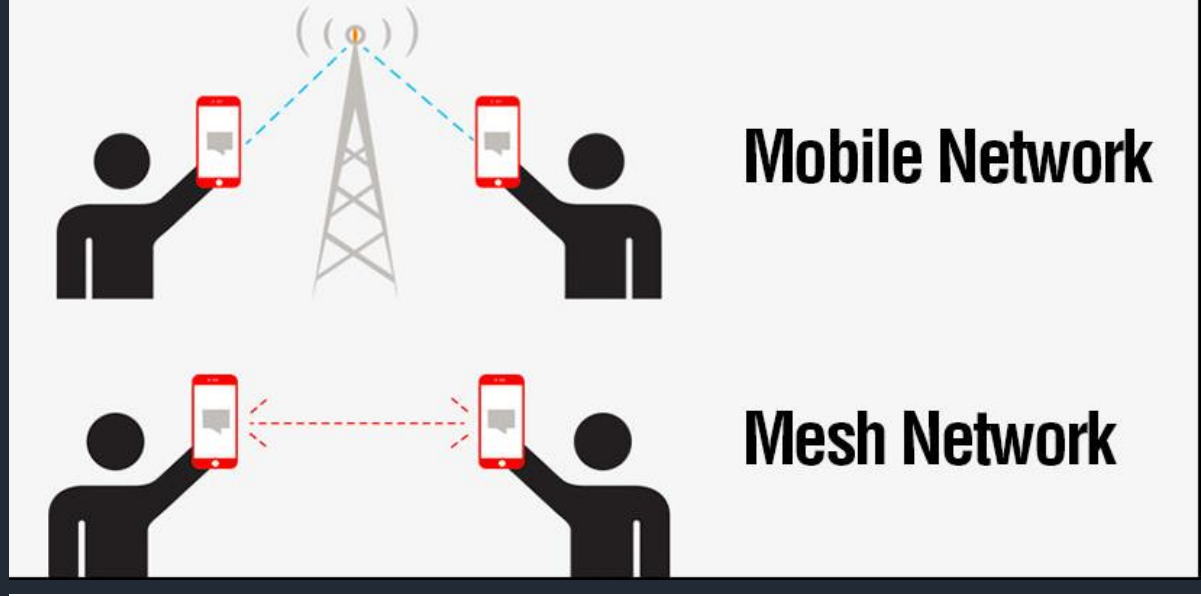
https://textit.com

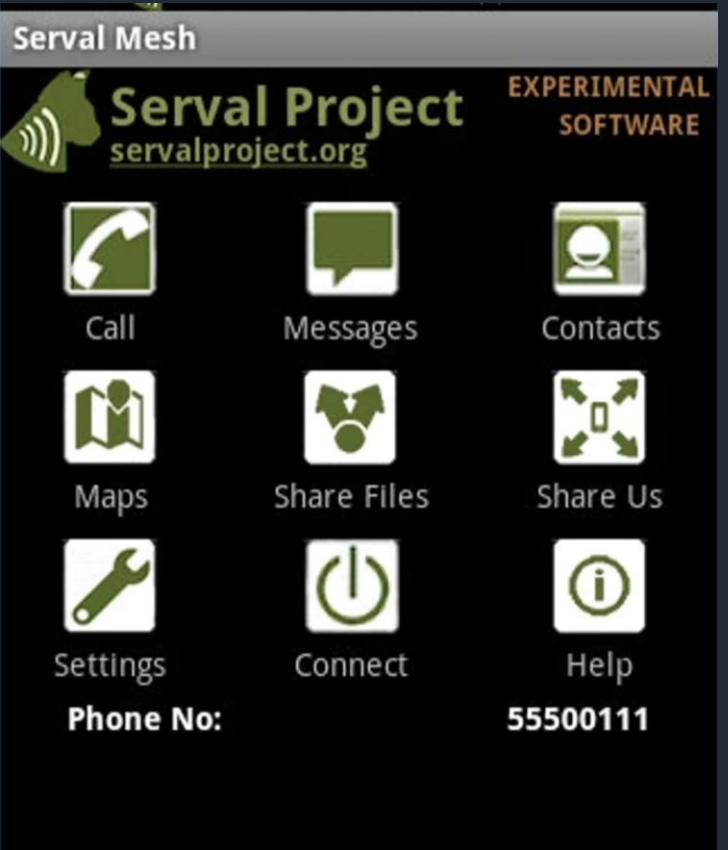


3: Community networks

Internet Society (2021). The Wireless for Communities (W4C) programme in Nepal. https://www.internetsociety.org

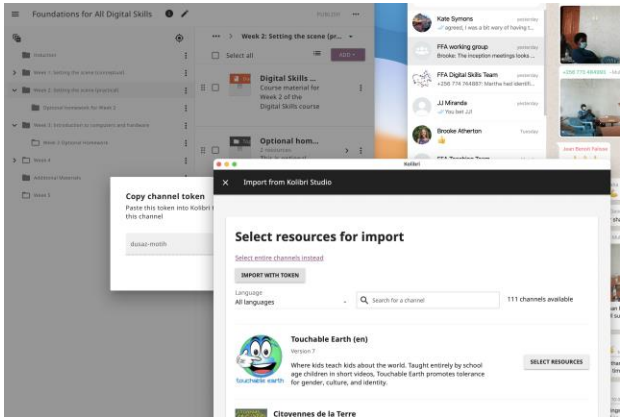
3: Alternative access/ connectivity

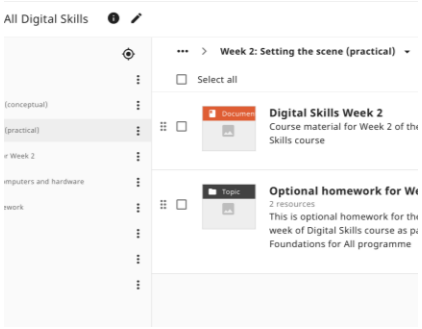


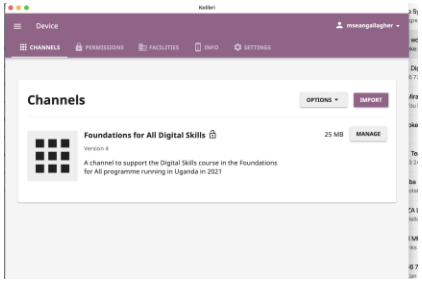


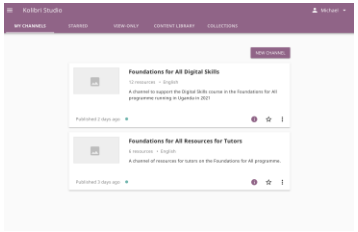
- Mesh
- P2P
- 'Stretching' networks
- Still problematic with spaces lacking density

https://www.bustle.com/p/emergency-apps-you-can-use-without-wi-fi-during-a-disaster-2307076









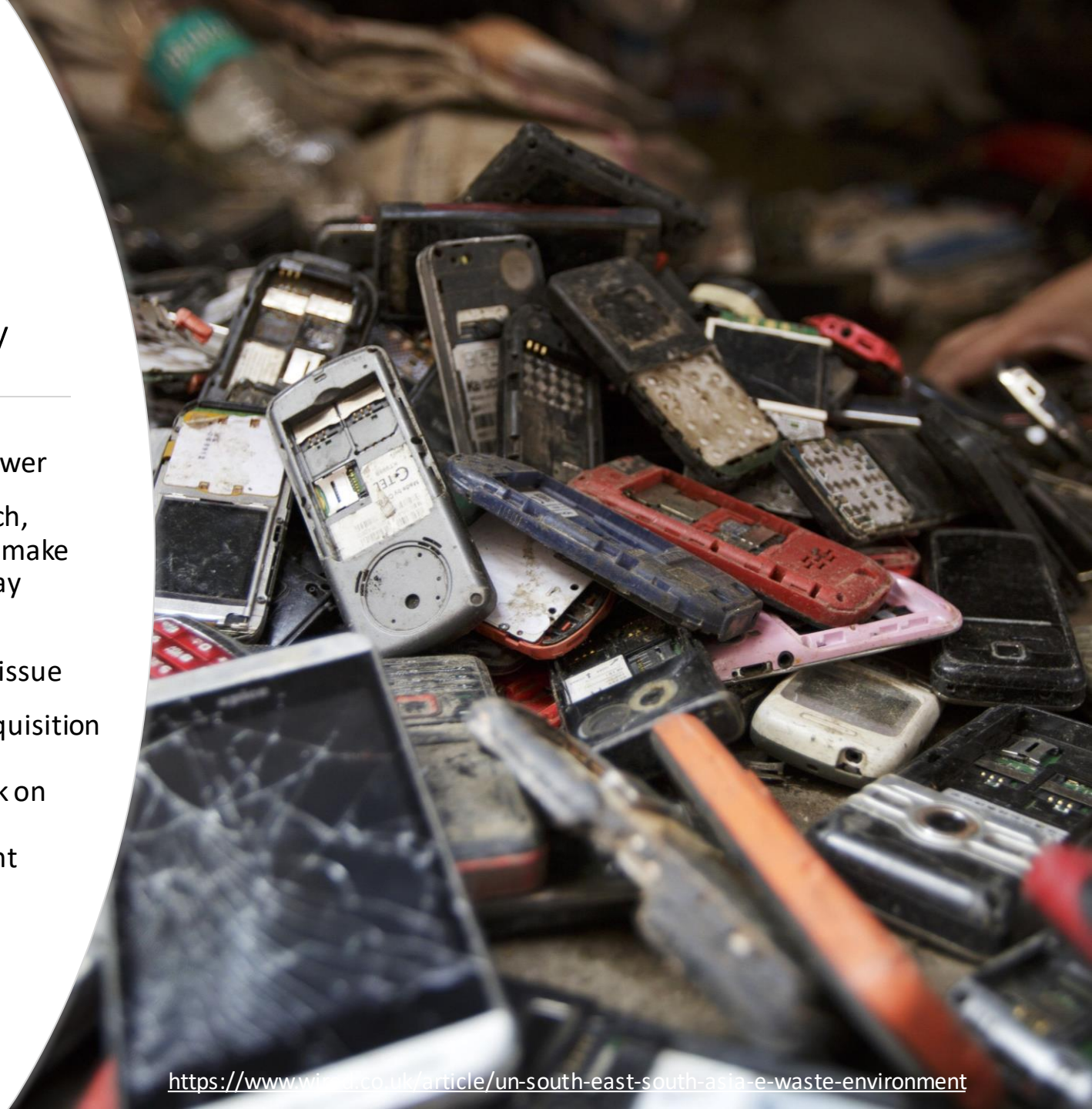
3: Online/ offline hybrids

1. Kolibri installers, updates, and content can be downloaded once to a device in an area that has an Internet connection
2. That "seeded" device can then share new content and updates with other devices over an offline local network. Allows for course teams to work in disparate locations
3. Doesn't tax laptop memory as it is download onto one device only; all access in schools happens through IP configuration
4. Allows for importing a large amount of OER if needed, for supplemental or self-study
5. Open

https://learningequality.org/kolibri/

3a: Sustainability

- More tech isn't the answer
- Configuring existing tech, regardless of platform, make or model, is a better way forward
- E-waste is a significant issue
- Be wary of any tech acquisition programmes without significant parallel work on teacher training and community engagement



https://www.wired.co.uk/article/un-south-east-south-asia-e-waste-environment

3b: Sustainability

- Invest in people and connections
- Invest in inclusion for those likely to be marginalised
- Link to broader digital inclusion efforts (around health, finance, utilities, commercial inclusion)
- Livelihoods to be found in these models

https://pennyappeal.org/news/q-celebrate-international-womens-day and https://www.gsma.com/mobilefordevelopment/connected-women/

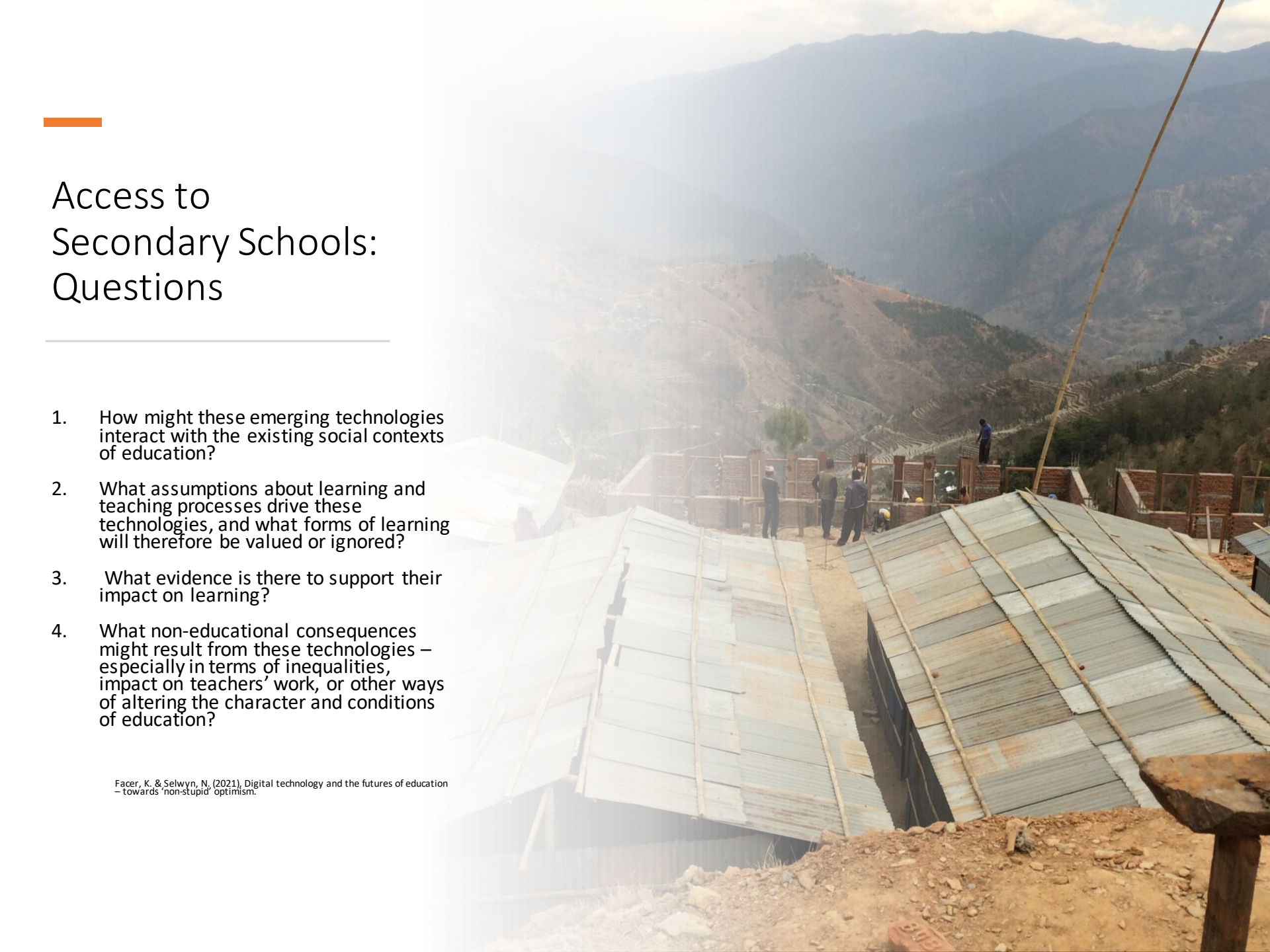
Access to Secondary Schools

- We need to ask what are the barriers to access and whether technology is amplifying or mitigating those: this isn't clear in many cases without a significant amount of scrutiny
- Other barriers likely matter more
- We need to consider whether we see the issue as access to content/curriculum or access to teachers and community
- Language and framing of education matter
- We need to engage with the notion that 'what works' does not scale
- We need to ensure that the imaginaries of access to secondary school education in the Asia Pacific are equitable, ethical, sustainable, and contextually specific

Access to Secondary Schools: Questions

1. How might these emerging technologies interact with the existing social contexts of education?
2. What assumptions about learning and teaching processes drive these technologies, and what forms of learning will therefore be valued or ignored?
3. What evidence is there to support their impact on learning?
4. What non-educational consequences might result from these technologies – especially in terms of inequalities, impact on teachers' work, or other ways of altering the character and conditions of education?

Facer, K. & Selwyn, N. (2021), Digital technology and the futures of education – towards 'non-stupid' optimism.



Resources

- https://datareportal.com/reports
- https://www.gsma.com/mobilefordevelopment/
- https://www.gsma.com/mobilefordevelopment/connected-women/
- https://www.internetsociety.org/issues/community-networks/
- https://a4ai.org/tackling-the-covid-19-pandemic-with-digital-solutions-across-asia-and-the-pacific/
- Facer, K. & Selwyn, N. (2021), Digital technology and the futures of education – towards 'non-stupid' optimism.

The Role of Digital in Access to Secondary Education in the Asia Pacific

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