

COVID19: Lessons for a better use of digital technologies

Maryline Mangenot (University College Dublin, Ireland)

Abstract

The COVID 19 pandemic revealed a worldwide divide in countries' digital approaches and savviness. In country, the digital divide also hindered access to education to the most vulnerable. Digital technologies presented both challenges and opportunities, which highlighted the need for planning ahead for a digitally integrated society, enhanced digital education policies, providing universal internet access, and regulating big data to ensure privacy.

Almost a year after the first cases were discovered in Wuhan, China, the SARS-Cov-2 spread across the world, infecting more than 70 million people, and killing 1,6 million (Our World in Data, 2021). The Guardian columnist Jonathan Freedland wrote that the COVID19, the disease associated with this novel coronavirus, “did not remake the global landscape so much as reveal what was already there, or what was taking shape, just below the surface.” (Freedland, 2020). The global pandemic indeed exposed many features, and failures, of our interconnected world. It highlighted diverging approaches to policy and public good, deepened inequalities and aggravated already existing dividing lines. Amongst those lines, the digital divide affected fundamental sectors like policymaking and education. Indeed, a solid reliance on digital technology was needed both to adapt to non-technological policy responses such as lockdowns on the one hand and to ensure the efficacy of non-pharmaceutical interventions on the other hand.

COVID19 as a magnifier of digital inequalities

The notion of digital divide can be traced back as early as the 1980s, though it really became widespread in the early 21st century (Vishkaie, 2020). The digital divide includes both technical challenges (access and equipment) and educational challenges (literacy to use and understand the technology). It also refers to spatial inequalities between and within countries. For example, 10% of the United Kingdom population was not using internet in 2018 (Watts,2020) while in Southern Italy 42% of families did not own a Personal Computer, compared to only 33% in the rest of the country in 2020 (Ferri,2020). The economic lockdowns decided by policymakers to contain the COVID19 pandemic increased the need for reliance on digital technologies. In the education sector, school closures implied that, in May 2020, according to UNESCO, 1.5 billion learners and 63 million primary teachers in 191 countries were forced to revert to distance learning (Walters, 2020). The possibilities presented by online learning were embraced (Dhawan, 2020) as an effective solution to offer continuity of education to students. However, even

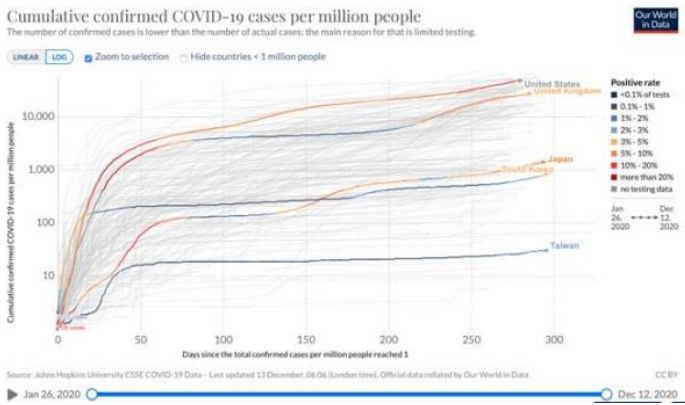
in developed countries it became apparent that many households lacked the broadband access or equipment to allow more than one child to follow online classes simultaneously, especially when the parents were also working from home. The poorest, families with children with disabilities, single parent families were hit the hardest – with often no adequate access at all (Walters,2020). The forced isolation of the learners created psychological impacts (Hung & Wati,2020).

Unexpected successes and foreseeable failures

Porcher (2020) demonstrated that culture has a strong influence on ‘good government’. To some extent, the more ‘collectivist’ approach of East Asian countries (preserving the stability and harmony of the group) seemed to lead to more efficient policies and non-pharmaceutical interventions to contain the pandemic. Drawing from the experiences of SARS and MERS, Taiwan, South Korea and Japan implemented social distancing and personal hygiene measures as early as January 2020, and travel bans and quarantines in February (Tashiro, 2020; Shaw, Kim & Hua,2020). On the other hand, the United Kingdom and the United States followed a completely different path. Leaders of both countries made declarations about sending ‘the virus packing in its country’ (Newton, 2020) and adopted a herd immunity policy which resulted in tens of thousands of deaths in the first months. The graph below shows the impacts of policy choices in terms of number of cumulative COVID19 cases between January and December 2020: while East Asian countries are at the bottom, the UK and the US are among the topmost infected countries (Fig 1 below).

The use of technology can be identified as one of the explanatory differences – many others come into play, and an impartial evaluation allowing to draw useful lessons for the future (Boin et al.,2020) will be necessary once the dust settles.

Figure 1. COVID19 cases per million people



Source: (Our World in Data,2021)

Successes and challenges of digital policy responses to the pandemic

The public health policy response to COVID19 is unprecedented in terms of digital technology use (Budd et al,2020). It required big data processing and machine learning to process cases information, contact tracing through mobile phones to curb the spread of the virus (Korea, Taiwan), mobility datasets and a successful digital communication strategy. (Fig 2 below).

Figure 2. COVID19 system of digital surveillance reproduced from Budd et al (2020)



Data collection centers, or “war rooms” have been at the heart of COVID19 policymaking (Datta, 2020) but not all countries managed to effectively use these digital solutions. The first challenge was to obtain accurate data on confirmed cases, which is done traditionally from aggregation of point of care data . In some countries it was complemented by digital surveillance systems such as voluntary symptoms detecting and online reporting platforms . As a lot of COVID19 cases are asymptomatic, contact tracing was a main challenge, and Taiwan and South Korea implemented contact tracing and isolation monitoring through the use of GPS

data and surveillance telephone calls (Budd et al, 2020; Yen, 2020). Adjusting the balance of these various tools allowed East Asian countries to control the spread of the virus, and Taiwan was praised for having “beaten” the virus (O’Flaherty,2020). Several limits to these digital policies however were soon observed. One of them is the threat to individual privacy. Countries such as China have imposed the use of contact tracing applications and the temptation of India to follow this path (Datta,2020; Momani,2020) is a cause for concern. The main privacy issues lie with anonymous treatment, disaggregation of data, and the duration and use of data collected. The risks of ‘surveillance capitalism’ (Zuboff,2019) have already been highlighted and witnessing centralised State agencies collecting and analysing this level of personal data can be particularly worrying (Momani, 2020). The existing digital divide is the second limit to digital policies, as various levels of digital health literacy and resistance to digital tools were exposed (Ramsetty & Adams, 2020), with the poorest being unable to access digital tools and information . The success of digital COVID19 policies relied on relevant, timely and trustworthy government communication notably through digital media. While South Korea deployed a high level of transparency (Shaw, Kim & Hua, 2020; Moon,2020) and Taiwan engaged in an open two-ways dialogue with civil society (Yen, 2020), the COVID19 debate in the United States discarded science for partisanship (Jiang et al, 2020) and was overshadowed by misinformation in the United Kingdom (Newton,2020). Convincing use of digital communication tools required a high level of health literacy from the elites (Spring, 2020) to induce the desired behaviour in individuals. As Zweifel (2020) noted, individual’s willingness to comply to freedom restricting measures is linked with their perception of risk; and the failure of voluntary contact tracing mobile applications in some countries (only 30% of adoption even in Singapore) perhaps reveals that many were not persuaded of the efficiency of the tool .

The path towards recovery

1. Plan for a digitally integrated society

Because Asian countries did comparatively better in containing the first onsets of the pandemic with non-pharmaceutical interventions, the Asian Bureau of Economic Research Expert Group (2020) called for an Asian-led recovery. In Korea and Japan, thoughts about the future were led out in the Korean New Deal (Policy Coordination Bureau – General Policy Coordination Division,2021) which includes a New Digital Deal amongst the pillars of development and the Japan “Super Smart Society” 5.0 which emphasises on

technology, and a digital and decarbonised society (Mavrodieva & Shaw, 2020).

2. Provide universal internet access

The pandemic revealed inequalities in access to digital technologies and devices, and several authors argue that Internet should be considered as a public good (Watts,2020; Lai, 2020), indicating that States should ensure universal coverage both in urban and remote rural areas in alignment with Sustainable Development Goal (SDG) 9.c (United Nations, 2015):

“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.”

Vishkaie (2020) also proposes that connecting devices (computer, smartphones, tablets) should be made available to all school children including in low and middle- income countries. This idea was affirmed by UNESCO’s Future of Education Commissioners during their meeting in June 2020 (Iyengar,2020). Principle #3 calls for a broad partnership and poses that schools should benefit from universal internet access and that “Every village must have the electricity, the laptops, and the trained teachers not only to achieve the ‘future we want’ but the ‘present we need’”.

3. Develop citizenship and digital education programmes

The COVID19 crisis revealed that governance, government processes and policy became more digitalised, and further participatory discussion on models of digital democracy (Boin et al.,2020) will be required . Education can play a significant role in bridging the digital literacy gap as the purpose of education systems is to prepare the youth and adults with knowledge and tools to navigate the world and be active and engaged citizens, as specified in SDG 4.7 (United Nations,2015):

“by 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture’s contribution to sustainable development”

Digital literacy includes not only a technical savviness from the public, teachers and students, but also requests for a better understanding of digital communities and

digital citizenship. Education curricula should then quickly adapt to integrate digital literacy components aiming at framing best practices of online citizenship and to adequately train future digitally aware online citizens (Buchholz,2020).

4. Regulate big data to ensure privacy

In an increasingly digitalised world, the accumulation and treatment of personal data by private or public organisations alike is not a small concern and any serious policy aimed at further digital transformation/adaptation should be devised only with thorough participation of all stakeholders. Civil society activists and human-rights watchdog organisation have currently a dual role to play in ensuring the best digital solutions are adopted to stop the COVID19 pandemic, and at the same time to place robust digital safeguards to protect individual privacy. At the same time, digitally aware citizens will be better prepared to assess privacy risks presented by widespread digital health technologies and processes.

References

- Asian Bureau of Economic Research Expert Group (2020). An Asian Strategy for Recovery and Reconstruction. East Asia Forum Quarterly. [online] Available at: https://eaber.org/wp-content/uploads/2020/07/post_covid19_asia_strategy_1.pdf [Accessed 20 Dec. 2020].
- Boin, A., Brock, K., Craft, J., Halligan, J., Hart, P., Roy, J., Tellier, G. and Turnbull, L. (2020). Beyond COVID-19: Five Commentaries on Expert knowledge, Executive action, and Accountability in Governance and Public Administration, Canadian Public Administration, 63(3), pp.339- 368.
- Buchholz, B.A., DeHart, J. & Moorman, G. (2020), Digital Citizenship During a Global Pandemic: Moving Beyond Digital Literacy, Journal of adolescent & adult literacy, vol. 64, no. 1, pp. 11- 17.
- Budd, J., Miller, B.S., Manning, E.M., Lampos, V., Zhuang, M., Edelstein, M., Rees, G., Emery, V.C., Stevens, M.M., Keegan, N., Short, M.J., Pillay, D., Manley, E., Cox, I.J., Heymann, D., Johnson, A.M. & McKendry, R.A. (2020), Digital technologies in the public- health response to COVID- 19, Nature medicine, vol. 26, no. 8, pp. 1183- 1192.
- Datta, A., Aditi, A., Ghoshal, A., Thomas, A. and Mishra, Y. (2020). Apps, Maps and War rooms: on the Modes of Existence of ‘COVtech’ in India. Urban Geography, pp.1-9.
- Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID- 19 Crisis, Journal of Educational Technology Systems, 49(1), pp. 5- 22. doi: 10.1177/0047239520934018.

- Ferri, F.; Grifoni, P.; Guzzo, T. (2020), Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations, *Societies*, 10, no. 4: 86.
- Freedland, J., (2020), The magnifying glass: how Covid revealed the truth about our world, *The Guardian*, online article, <https://www.theguardian.com/world/2020/dec/11/covid-upturned-planet-freedland>
- Hung, R. & Wati, U.A. (2020) . Digital Home Schooling During the Pandemic: Possibilities and Challenges, *Knowledge Cultures*, vol. 8, no. 2, pp. 36-43.
- Iyengar, R. (2020). Education as the Path to a Sustainable Recovery from COVID-19. *Prospects*, 49 (1-2), pp.77-80. <https://doi.org/10.1007/s11125-020-09488-9>
- Jiang, J., Chen, E., Yan, S., Lerman, K. and Ferrara, E. (2020). Political Polarization Drives Online Conversations about COVID -19 in the United States. *Human Behavior and Emerging Technologies*, 2(3), pp.200- 211.
- Lai, J. and Widmar, N.O. (2020). Revisiting the Digital Divide in the COVID- 19 Era. *Applied Economic Perspectives and Policy*, 43(1).
- Mavrodieva, A.; Shaw, R. (2020), Disaster and climate change issues in Japan's Society 5.0 — A discussion, *Sustainability*, 12, 1893.
- Momani, B. (2020), After Covid- 19, Will We Live In A Big Brother World? , Centre for International Governance Innovation: University of Waterloo . Accessed online: <https://www.cigionline.org/articles/after-covid-19-will-we-live-big-brother-world>
- Moon, M.J. (2020), Fighting COVID-19 with Agility, Transparency, and Participation: Wicked Policy Problems and New Governance Challenges, *Public administration review*, vol. 80, no. 4, pp. 651- 656.
- Newton, K. (2020), Government Communications, Political Trust and Compliant Social Behaviour: The Politics of Covid-19 in Britain, *The Political quarterly* (London. 1930), vol. 91, no. 3, pp. 502-513.
- O'Flaherty, K., (2020), How Taiwan beat Covid- 19, *Wired*, online article <https://www.wired.co.uk/article/taiwan-coronavirus-covid-response>
- Our World in Data (2021). Coronavirus (COVID-19) Cases - Statistics and Research. [online] Our World in Data. Available at: <https://ourworldindata.org/covid-cases> [Accessed 12 Dec. 2020].
- Policy Coordination Bureau - General Policy Coordination Division (2021). Ministry of Economy and Finance. [online] english.moef.go.kr. Available at: <https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=5173> .
- Porcher, S., (2019) Culture and the Quality of Government. *Public Administration Review* Published online October 7. <https://doi.org/10.1111/puar.13106>
- Ramsetty, A., Adams, C., (2020) Impact of the digital divide in the age of COVID- 19, *Journal of the American Medical Informatics Association*, Volume 27, Issue 7, July 2020, Pages 1147- 1148, <https://doi.org/10.1093/jamia/ocaa078>
- Shaw, R.; Kim, Y.K.; Hua, J. (2020) Governance, technology and citizen behavior in pandemic: Lessons from COVID- 19, *East Asia. Prog. Disaster Sci.*
- Spring, H. 2020, Health literacy and COVID- 19, *Health information and libraries journal*, vol. 37, no. 3, pp. 171- 172
- Tashiro, A. & Shaw, R. (2020), COVID- 19 Pandemic Response in Japan: What Is behind the Initial Flattening of the Curve?, *Sustainability*, vol. 12, no. 13, pp. 5250.
- United Nations (2015). Transforming Our World: the 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs . [online] United Nations. Available at: <https://sdgs.un.org/2030agenda> [Accessed 3 Dec. 2020].
- Vishkaie, R., (2020). The pandemic, war, and sanctions: building resilience for the digital divide in education. *interactions* 27, 4 (July - August 2020), 36- 37. DOI: <https://doi-org.ucd.idm.oclc.org/10.1145/3407232>
- Walters, A. (2020), Inequities in access to education: Lessons from the COVID-19 pandemic. *The Brown University Child and Adolescent Behavior Letter*, 36: 8- 8. <https://doi-org.ucd.idm.oclc.org/10.1002/cbl.30483>
- Watts, G. (2020). COVID- 19 and the Digital Divide in the UK. *The Lancet Digital Health*, [online] 2(8), pp.e395- e396. Available at: [https://www.thelancet.com/journals/landig/article/PIIS2589-7500\(20\)30169-2/fulltext](https://www.thelancet.com/journals/landig/article/PIIS2589-7500(20)30169-2/fulltext) .
- Yen, W.T, (2020), Taiwan's COVID-19 Management: Developmental State, Digital Governance, and State-Society Synergy, *Asian Politics & Policy*, vol. 12, no. 3.
- Zuboff, S. (2019). *AGE OF SURVEILLANCE CAPITALISM : the Fight for a Human Future at the New Frontier of power*. S.L.: Public Affairs.
- Zweifel, P. (2020), The COVID-19 crisis: A public choice view, *Economic affairs* (Harlow), vol. 40, no. 3, pp. 395-405.