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A global outlook to the interruption of education due to COVID-19 Pandemic: Navigating in a time of uncertainty and crisis

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Abstract: Uncertain times require prompt reflexes to survive and this study is a collaborative reflex to better understand uncertainty and navigate through it. The Coronavirus (Covid-19) pandemic hit hard and interrupted many dimensions of our lives, particularly education. As a response to interruption of education due to the Covid-19 pandemic, this study is a collaborative reaction that narrates the overall view, reflections from the K12 and higher educational landscape, lessons learned and suggestions from a total of 31 countries across the world with a representation of 62.7% of the whole world population. In addition to the value of each case by country, the synthesis of this research suggests that the current practices can be defined as emergency remote education and this practice is different from planned practices such as distance education, online learning or other derivations. Above all, this study points out how social injustice, inequity and the digital divide have been exacerbated during the pandemic and need unique and targeted measures if they are to be addressed. While there are support communities and mechanisms, parents are overburdened between regular daily/professional duties and emerging educational roles, and all parties are experiencing trauma, psychological pressure and anxiety to various degrees, which necessitates a pedagogy of care, affection and empathy. In terms of educational processes, the interruption of education signifies the importance of openness in education and highlights issues that should be taken into consideration such as using alternative assessment and evaluation methods as well as concerns about surveillance, ethics, and data privacy resulting from nearly exclusive dependency on online solutions.

Keywords: emergency remote education, distance education, online learning, Coronavirus Pandemic, Covid-19.

Introduction

Following the first-time identification of Coronavirus (Covid-19) in December 2019, the World Health Organization (WHO) declared that Covid-19 is a global pandemic in March 2020, and warned about its highly contagious nature (WHO, 2020). As a precaution to slow down its spread, countries all around the world followed strict protocols such as complete or partial lockdowns, social distancing regulations, and curfews. To reduce the chances of humans infecting each other with Covid-19, places where humans interact closely were shut down, including educational institutions. Accordingly, as an outcome of the measures taken worldwide, more than 1.5 billion enrolled students of all ages from all around the globe experienced interruption of education which equals nearly 90% of the global student population (UNESCO, 2020a; 2020b; UNICEF, 2020). Though the interruption of education has occurred previously in many local instances (e.g., in cases of war, civil unrest, famine or strikes) it is "being experienced more acutely and affectively by educators, students and parents" at a global scale for the first time (Williamson, Eynon, & Potter, 2020, p. 107). Consequently, to ensure the continuity of education, emergency remote education was put in practice in varying delivery modes.

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Emergency Remote Education

In such a critical time, there has been a drastic change in how teaching and learning happen while learners are physically out of schools and separated from their teachers and co-learners. The educational practices during the Covid-19 pandemic are denoted with different terms in different countries (e.g., distance education, e-learning, online education, homeschooling, etc.). However, these terms do not quite capture what is being practiced during the interruption of education, which can better be described as *emergency remote education* (ERE). Considering that the terms used in different countries are derivations of distance education, as a generic term, the remarkable difference between *emergency remote education* and *distance education* is that the latter is an *option* while the former is an *obligation*. Such an understanding is crucial because misconceptions in definitions would lead us to misconceptions in practices. Distance education, for instance, is a planned activity and its implementation is grounded in theoretical and practical knowledge which is specific to the field and its nature. On the other hand, emergency remote education is about surviving in a time of crisis with all resources available, including offline and/or online.

To better conceptualize emergency remote education and to distinguish it from distance education, there is a need to briefly revisit the field of distance education. Distance education is defined as "any educational process in which all or most of the teaching is conducted by someone removed in space and/or time from the learner, with the effect that all or most of the communication between teachers and learners is through an artificial medium, either electronic or print" (UNESCO, 2002, p. 22). Nevertheless, it 'is not simply a geographical separation of learners and teachers, but, more importantly, is a pedagogical concept' (Moore, 1997, p. 22). In contrast, the crash nature of emergency remote education inevitably results in its weakness in theoretical underpinning and is far from being a pedagogical concept in its own right.

The field of distance education has already proved its validity and value (Xiao, 2018) and earlier research indicated that there is no difference between distance education and face to face education (Russell, 1999). Against widely known assumptions, distance education does not specifically refer to online education, but a wide range of technologies used throughout its generations (Bozkurt, 2019a; Jung, 2019; Moore & Kearsley, 2012). The pragmatic nature of distance education allows the field to use working solutions for learners and defends the view that the field should provide educational opportunities for those who are "vulnerable to unequal developments" (Bozkurt, 2019b, p. 510).

While this is the case for the field of distance education, the World Bank (2020a) highlights that during the emergency remote education "failure is common, and success is often a result of experience and learning from past failures" (p. 1). The World Bank (2020b) further points out that:

> "education systems must confront issues of inequity front and center. They must also prepare multi-modal responses, capitalizing on existing infrastructure and utilizing a combination of different learning mediums to ensure students are engaged and learning. [emergency remote education] can ensure that students continue learning through a variety of avenues. While digital technologies can offer a wide set of capabilities for remote learning, most education systems in low- and middle-income countries, including schools, children and/or teachers, lack access to high-speed broadband or digital devices needed to fully deploy online learning options. As such, education systems need to consider alternative ways for students to continue learning when they are not in school, like in the current Covid-19 crisis" (p. 1).

In this regard, it can be argued that, during the Covid-19 pandemic, with similarities and differences (Bozkurt, & Sharma, 2020; Hodges et al., 2020; Huang et al., 2020; Tzifopoulos, 2020), it was emergency remote education that was applied and it can be further argued that emergency remote education is a branch of distance education as in the case of online learning, e-learning, m-learning, or homeschooling.

The following sub-sections briefly describe major themes that have arisen from the interruption of education during Covid-19 and briefly introduce some background information to better interpret the cases.

Issues of Concern in Relation to Interruption of Education

Trauma, psychological pressure, and anxiety

In addition to the profound and global impact of the pandemic on our social, economic, and political lives, Covid-19 has also affected individuals both emotionally and psychologically (Miller, 2020). As Jansen (2020), former Vice-Chancellor of the University of the Free State (South Africa) highlighted, "Our biggest mistake would be to treat children as cognitive machines that can simply be switched on again after the trauma of Covid-19". Due to the pandemic, learners, teachers and parents are going through a great deal of anxiety. In their everyday lives, they may be finding self-isolation and lockdown days difficult or may be concerned about the inability to self-isolate. They may be worried about the lack of water and sanitation in their homes and their communities. They may lack proper nutrition. They may have increased family or financial responsibilities. They are likely to be distressed about the health and safety of their loved ones and themselves.

In some universities, students - both local and international - were asked to vacate their accommodation on short notice and did not have another place to go to (Batty, 2020; Fazackerley, 2020). Adding to this, there remain many unknowns such as when schools will re-open or whether the school year will be lost. Lack of communication and inconsistent information from educational institutions and ministries of education have added to the anxiety. Regarding continuity of teaching and learning, learners have suddenly needed to direct and regulate their own learning and become digitally savvy; educators have had to switch to online teaching overnight regardless of their comfort level, familiarity, and training in digital pedagogies, and parents have had to morph into dual roles as parent-educators. This has put a lot of psychological pressure on all parties, as the shift to the online medium requires a specific set of technical and pedagogical knowledge and skills. The steep learning curve and an overload of information, especially for those who are not familiar or experienced in online learning and teaching, could have negative impacts on learners as they may feel demotivated and discouraged (Liyanagunawardena, Williams, & Adams, 2013).

Emerging educational roles of the parents

The World Bank aptly describes that the 'unique nature of the pandemic places parents as the first-line responders for children's survival, care and learning' (Devercelli, 2020). With children learning from home, parents have suddenly had to learn how to become educators. For parents who have access to the internet and are working remotely from home, they had to balance facilitating their children's learning with attending to their day jobs. For parents with low education levels and minimal resources, trying to support their children in learning is a challenge on many different levels. Drawing on the studies from the Young Lives project, however, maternal aspirations, rather than maternal (or paternal) education, have shown to be the key driver in household investment in child education (Serneels, & Dercon, 2014). Additionally, a plethora of resources has been circulated or generated to support parents such as storybooks which are produced in local languages e.g. through the open access African Storybook initiative (African Storybook, 2020). Parents have also been encouraged to stimulate their children's learning through everyday tasks at home such as cooking, caregiving, or gardening instead of focusing solely on curriculum learning. Cluver et al. (2020) note that while it is a challenge for parents with additional roles, it is also an opportunity and a necessity for building stronger social relationships and showing our support to families during the hard times. While the dual role is difficult to manage, Ndhine (2020) has also highlighted that it is an opportunity for parents to engage more intimately in the lives of their children and play a more active role in shaping their characters.

Support communities and mechanisms

Surviving during the Covid-19 requires building support communities, sharing tools and knowledge, and listening to different voices. While it is advised that we keep our social distance, what is meant is keeping the spatial distance, not the transactional distance (Moore, 2013). Waddingham (2020) argues that "overwhelmed by the scale of things that are happening" (p. 104), we have to look after each other and make each other feel that nobody is alone in these traumatic times. Social media, during these times, played an essential role by facilitating a space where educators can meet, share, and exchange their knowledge. While support communities are important for educators to collaborate and support each other, students similarly need care, affection, and support. Thus, it is important to create safe spaces where young people can support each other.

From an educational perspective, support communities are vital because many people are psychologically overwhelmed, and in need of assistance from those who are better able to cope with

the pandemic and its implications in education. There were many efforts to support individuals and institutions varying from sharing tips, advice, and resources to providing strategies and guidelines (Archambault, & Borup, 2020; Chiodini, 2020). For instance, The World Bank (2020c) curated a useful list that both educators and institutions can benefit from during the emergency remote education. As noted by Williamson, Eynon and Potter (2020), many for-profit educational companies temporarily made their services available for free (e.g., Pearson) and, similarly, technology companies (e.g., Google) made their freemium services for free to support emergency remote education practices.

Pedagogy of care, affection, and empathy

With the uncertainty that characterizes this period of human existence and the resulting anxiety and trauma that learners, teachers and parents are experiencing, the theme of a pedagogy of care has surfaced within educational institutions. While the theme of care in education has become popularised during the crisis, it is a crucial element in learning that has always been needed, and that will continue to be essential long after Covid-19 (Bali, 2020a). Nonetheless, the emotional ramifications resulting from the trauma caused by this pandemic require intentional designs and practices that embody care, inclusion, compassion, and empathy as core values (Zembylas, 2013). A care approach to education pushes educators to recognize and address the diversity of students' experiences and vulnerabilities, allowing them to be more receptive not only to the assumed needs of students but also their expressed and individual needs. This requires structures and practices that go beyond academia and prioritizes the emotional and psychological development and needs of students, especially during times of crisis. Concerned Academics (2020) outlined a 'Social Pedagogy'; an approach that is:

> "consultative, inclusive, and sensitive to the contexts of students, teachers and their communities. It works toward a mutually supportive framework that will carry our pedagogic work through the current crisis, into a period of just recovery, and a more equitable future."

Research has shown that emotions play a major role in the online learning experience itself, and not only during the transition to online learning (Cleveland-Innes & Campbell, 2012), and that the online learning context is robust enough to allow for caring relations to emerge at even a deeper level than that experienced in face to face contexts (Velasquez, Graham, & Osguthorpe, 2013). As a result, several researchers have been investigating design elements and pedagogical practices that can enhance the emotional sensitivity and support the development of caring relations in online learning in K12 and higher education contexts (Chng, 2019; Robinson, Al-Freih, & Kilgore, 2020; Sitzman, & Leners, 2006; Velasquez et al., 2013). A key part of a pedagogy of care is listening to students and engaging in open and authentic dialogue - particularly marginalised and disadvantaged students who are struggling with the compounded effects of inequities that already exist in educational systems as a result of this sudden pivot to emergency remote education - and providing additional and stronger support to address these concerns and challenges (Concerned Academics, 2020; Noddings, 2012). This involves understanding learners as individuals in their personal, social, economic, and political environments - beyond their role as a learner in a classroom/lecture hall (ibid.). Lambert's Six Critical Dimensions model, for example, incorporates learner diversity and agency into online and blended learning processes as well as an understanding of students' skills, support and learning materials that empower rather than reinforce existing inequalities (Lambert, 2019). In understanding the lived experiences of learners, emergency remote education strategies need to be adapted to ensure that no learner is left behind or further disadvantaged (ibid.). Strategies and practices such as flexibility with course requirements, promptness, clarity of communication, multiple points of contact, personal connections, reciprocity of caring, and students centered design and teaching practices have shown potential in nurturing and maintaining a climate of care online (Robinson et al., 2020; Sitzman, & Leners, 2006; Velasquez et al., 2013). These entail designing emergency remote education curricula that do not stop at content delivery and assigning tasks for assessment purposes, but that intentionally create spaces for learners to learn together in small groups (social constructivism) and to reimagine digital forms of informal social spaces (sometimes called third places) for connection similar to playgrounds and cafeterias (Bali, 2020b) that help make school enjoyable for students and help build their social and cultural capital.

Given the devastating impact of this global crisis, prioritizing the issues of care, empathy, and emotional/psychological support should not be limited to the classroom setting or only targeted towards students, but also embodied in educational policy and decision-making that impact educators and staff as well (Bali, 2020a). This crisis has also highlighted the invisible roles that schools and universities play in society beyond their roles as educational institutions such as providing access to feeding schemes,

establishing socio-emotional support structures and community counselling services, and shelter when situations at home are difficult.

Reasonable adjustment: alternative assessment and evaluation methods

To ease the load on educators and learners, many educational institutions have reduced curriculums and offered pass or fail options to learners, or completely deactivated pass/fail options. There has also been a switch to focus on formative assessments over summative assessments. Liberman, Levin and Luna-Bazaldua (2020) highlight that formative assessment during Covid-19 is crucial as "teachers and parents-turned-teachers need to understand whether students are absorbing the content that is delivered to them in formats that differ from business-as-usual." Prior to Covid-19, formative assessment involved classroom observation and continuous feedback on homework and assignments (ibid.). In times of Covid-19 formative assessment has been done at a distance through both synchronous and asynchronous means (ibid.). Synchronous methods include working together on online platforms like Zoom or Microsoft Teams, or using educational TV programmes in conjunction with a toll-free hotline for learners and educators to communicate. Asynchronous methods can involve the use of Virtual Learning Environments where questions can be asked and tasks, activities, and quizzes can be done. In under-resourced contexts, email and messages applications like WhatsApp can be used to communicate with learners asynchronously.

Many educational institutions have had policies of "reasonable adjustments" for accommodating learners with disabilities for many years, and responses are often focused on technology for increasing options to read materials, captioning or support for note-taking, and provision of alternative assessments. In the last decade, as anxiety disorders in young people have increased substantially the type of students registering with disability services have broadened dramatically to include those with a range of social and assessment or academic anxiety seeking exemptions for high-stakes assessment and social pressures associated with group-work. Such experiences have led to the rise of inclusive education policies which attempt to provide accessible digital materials for all learners (with captioning, accessible to screen-readers etc.) and design flexible assessments which do not require so many individual adjustments. These principles and approaches have proven very useful through Covid-19. Indeed, many learners with both physical/mobility and/or mental health and anxiety conditions have benefitted from the pivot to online learning as all subjects have gone completely online for all students. In some ways then, it is possible to think of Covid-19 as a large-scale system wide 'reasonable adjustment' for the mass of students undertaking learning remotely and under duress.

Surveillance, ethics, and data privacy concerns

As much of teaching and learning has pivoted online, learners do not have much choice in the platforms they sign up to and the digital footprint that they are leaving behind; if they want to continue their education, they must sign up. A similar issue was raised by Khalil, Prinsloo, and Slade (2018) for MOOC users who had to accept certain user agreements for their user data to be captured to be able to access the MOOC platforms. User data, considered as the new oil and has a marketing potential (Kerres, 2020), is being collected, analysed and, in some cases, sold to third parties (Prinsloo, Slade, & Khalil, 2019).

In other cases, there is a need for better cyber security as user data has been hacked or leaked (such as in the case of Zoom) (Davey, 2020). Safety and security while in virtual calls has also been an issue due to 'bombers' that hack in and display rude or inappropriate messages (Manskar, 2020). The use of online proctoring services has also surged during the pandemic as a way to control for cheating and academic dishonesty, which raises some serious concerns about student privacy and test anxiety students feel as a result of being surveilled.

Digital divide

With the majority of schools closed due to Covid-19, many emergency remote education approaches have depended on access to the internet in addition to data and devices to provide continuation of teaching and learning. This shift to online has highlighted the stark digital divide between those who have access to electricity, internet infrastructure, data, and devices, and those that do not. As of 2019, only 39.6% of Africans have internet access compared to 87.7% of Europeans and 95% of North Americans (Internet World Stats, 2020). Where there is access, there are further inequalities in bandwidth distribution, data price and internet speed, which are further shaped by socio-economic factors of gender, age, employment, educational background, neighbourhood and household income (Rohs, & Ganz, 2015). Many ministries of education are working with telecommunication providers to zero-rate educational content on websites (McBurnie et al., 2020). This will remove data costs as a

barrier but still requires learners to have access to a (smart) mobile phone at the very least, assuming that digital content is compatible with smartphones and that electricity is consistent enough to charge devices regularly.

Haßler et al (2020) highlight the differences in access to laptops, smartphones, feature phones, TV and radios between high-, middle- and low-income countries, as well as the difference in access between high-, middle- and low-income populations within countries. While high-income populations are able to access emergency remote education through laptops and smartphones, low-income populations rely more on TV and radio. Podcasts, interactive radio instruction, and educational TV programs such as Akili and Me, Sesame Street and Know Zone have been shown to support learning (Borzekowski, 2018; McBurnie, 2020; Watson, 2020). The most marginalised populations, in remote rural areas, however, may not even have access to radio and TV. Even when these devices are present in households, there are often not enough devices to accommodate the simultaneous educational needs of multiple children as well as parents who may need them for remote working.

Beyond access, there is a further misconception that if internet access and devices are equally available to all, then online and remote teaching solutions will be effective (Adam, 2020). However, these assumptions do not take into account that students require not only digital and internet literacy but also the self-directed learning skills needed to best benefit from online/remote learning (ibid.). Furthermore, as Rohs and Ganz (2015) outline through drawing on Knowledge Gap Theory (Tichenor et al., 1970), one's ability to best utilise the resources and opportunities provided through online learning is directly proportional to one's socio-economic status. During this crisis, we thus see that those who are privileged to have data, device and digital literacy are able to shift to emergency remote education far better and those that do not have such affordances.

We must also remember there are differences among teachers within one school, and across schools and countries in terms of digital access, digital literacies, access to software and content, and availability of supportive online communities.

Inequity and social justice

It is important to note that the digital divide is not just an issue of present-day infrastructure but stems from historical inequalities such as slavery, indentured labour and colonialism. The material, cultural-epistemic and geopolitical inequalities, that are now clearly visible through the lens of Covid-19, are not new phenomena but are exacerbations of deeply rooted pre-existing inequalities. For example, during the crisis, the wealthy are able to stockpile food, safely self-isolate and purchase cleaning products, yet the poor often do not have the same luxuries. Many informal workers in service industries have lost their jobs due to lockdowns and have no source of income to support their families, while others put their lives at risk every day because they have to work outside the home.

While high-income populations have felt the impact of Covid-19 on education, many low- and middle-income populations have already been experiencing a learning crisis and thus Covid-19 has had little impact on the already-low levels of learning (Haßler, 2020). In these areas, the biggest concern is that children can no longer access to feeding programmes that provided them with some level of nourishment. Furthermore, the longer these children stay out-of-school, the less likely they are to return as they may be required to perform household chores or labour.

At a school level, teachers unions in some countries are boycotting returning to school until safe and sanitary school environments can be ensured. At a university level, students and scholar-activists in highly unequal nations are protesting the pivot to online as a solution that reinforces privilege (Mokhoali, 2020).

For those that have been facing injustices prior to Covid-19, the hope is not to return to normal but to use this crisis as an opportunity to fix an education system that was already broken to begin with (Black, 2020).

(Why) Openness: Open educational practices, open educational resources, open scholarship, open science and open data

Openness in education is "a term that builds bonds with critical pedagogy, a colour with many shades, a notion with pluralistic and inclusive connotations, a stance that defends widening participation" (Zawacki-Richter et al., 2020). During Covid-19 pandemic, openness related initiatives proved their

values and played significant roles. In this sense, one of the biggest silver linings of Covid-19 has been the turn towards open educational practices and open educational resources , both at a school and university level. However, note that this is not to be confused with “free” content that is being made available temporarily by publishers on their websites, but refers to resources that can be legally reused, revised, remixed, redistributed and retained (also known as the 5R’s framework) (Wiley, 2011). OEP, as “a broad range of practices that are informed by open education initiatives and movements and that embody the values and visions of openness” (Koseoglu, & Bozkurt, 2018, p. 455). refers to “collaborative practices that include the creation, use, and reuse of OER, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners" (Cronin, 2017, p.18).

At a university level, the Commonwealth of Learning (2020) has launched a partnership with over 44 universities and educational institutions (the majority being open and distance learning institutions) to collaboratively work on supporting learning throughout the crisis.

While openness is generally associated with open licencing (Koseoglu, Bozkurt, & Havemann, 2020), it is important to note that some educators (see ROER4D research by Trotter, Hodgkinson-Williams, & Willmers, 2018) use whatever is publicly available online without a license. This research also highlights that availability of open educational resources may have economic benefits but may exacerbate cultural-epistemic injustice if marginalized viewpoints are excluded in the resulting content, or if it is only available in English to populations that cannot easily translate it. Open educational resources and practices may also reproduce political injustice if teachers from marginalized groups are not given decision making power, or parity of participation in the production or remixing of open materials (Trotter, Hodgkinson-Williams, & Willmers, 2018). For these reasons, researchers have become interested in social justice as a key framework to understand open and online education (Trotter, Hodgkinson-Williams, & Willmers, 2018; Lambert, 2018), which brings a focus on the equity of access, participation and outcomes for learners rather than the media, delivery type or type of resources. As Lambert (2018) notes, the success of such approaches to open education can be measured “not by any particular technical feature or format, but instead by the extent to which they enact redistributive justice, recognitive justice and/or representational justice” (p. 239). This has become highlighted throughout the responses to Covid19.

While open scholarship was a common behavior, open science and open data activities were also common initiatives to increase access to knowledge during the Covid-19 crisis. As well as calls for sharing data openly and ensuring global access (Cosgriff et al., 2020; Dye et al., 2020; Moorthy et al., 2020; Nature Human Behaviour, 2020), some data bases such as Zenodo and ResearchGate enabled featured spaces where researchers can share and access Covid-19 related publications and data sets.

Gender issues

While lockdowns are key to slow down the spread of Covid-19, this has negatively impacted adolescent girls and women in what has come to be known as the ‘shadow pandemic’ (Mutavati, Zaman, & Olajide, 2020). Many countries have reported increases in domestic and sexual violence (ibid.). A study conducted in times of Ebola showed that school closures led to increased gender-based violence, teenage pregnancies, child marriage, exploitation and other forms of abuse against adolescent girls (Bandiera et al., 2019). The Global Partnership for Education (2020) warns that “the impact of Covid-19 on adolescent girls is likely to surpass that caused by the Ebola epidemic.”

Even when not at the extreme of gender-based violence, Covid-19 has disproportionately impacted women, particularly mothers and those in care-giver roles. Before Covid-19, women had already spent almost double the amount of time, in comparison to men, handling domestic tasks such as laundry, grocery shopping, cleaning and taking care of kids (Medina & Lerer, 2020). This imbalance has expanded exponentially during the crisis where women’s professional careers have taken the greatest hit (ibid.). Additionally, it is usually mothers who have had to take on the role of teacher in out-of-school learning. Because it is impossible for full or even part-time working mothers to provide care for children, cooking and clearing, and schooling of children, some fathers have been asked (or have seen the need) to step up and take on many of the previously hidden tasks of caring and running a household. Such reconsideration of gender roles in homes may be a positive outcome in some cases. However, such positive advances are contrasted with the many cases when women have been asked to take time off their jobs so their husbands can continue working through Covid19 unimpeded. Issues of gender equality are in the spotlight in both more traditional and more liberal countries and only time will tell to

what extent Covid19 will bring about commitment to re-examine men's and women's roles in families and work as a step to reducing gender inequality (Rich, 2020; need to add the second reference here.).

Essential (soft) skills and competencies to survive in a time of crisis

The pandemic has highlighted what skills and competencies are needed to be prepared for a crisis like Covid-19. The need for digital literacy for students, parents and teachers arose as most critical in emergency remote education. Beyond digital literacy is the need for critical digital literacy which refers to the skillset of being able to critically analyse information and evaluate its authenticity. This need arose due to the high amount of fake news circulating, particularly through forwarded messages on WhatsApp. For instance, Depoux et al (2020) reported that misinformation is as contagious and dangerous as coronavirus and its spread is faster than the pandemic. They further noted that misinformation causes fear and confusion and further hampers the fight with the pandemic.

The pandemic also highlighted the need for educators to become familiar and trained in online pedagogies, as online education cannot be a replication of face-to-face pedagogies in digital form because of differences in affordances and constraints between the two learning environments. In low- and middle-income countries, familiarity with how low-tech solutions can be used to support learning is needed for teachers. Thus, as suggested by Koehler and Mishra (2009), the need to redesign the curriculum for technological knowledge in addition to pedagogical and content knowledge was obvious and teacher professional development needs to be expanded to cover this deficiency.

Beyond the skills that are needed to survive a crisis, the pandemic has also shown us many skills that can be carried forward when we return to a new normal. The pandemic has shown the need for a pedagogy of care, over a need to teach the curriculum. Now, more than ever before, educators are thinking about learners beyond their role in the classroom to the difficulties they may be facing in their personal lives. This care and concern is an important trait that needs to be developed and strengthened as it is not only needed in times of crisis but always. The pandemic has also highlighted the need to shift to more student centered practices and pedagogies that emphasizes the process of learning and student experience and engagement online, rather than merely being assessed at the end.

Purpose of the study

Based on the above explained thoughts, the main purpose of this study is to examine country-based cases to reach a global outlook and to better understand how societies reacted to the interruption of education, how they shifted from face to face education to emergency remote education.

Methodology

Given the main purpose of this study, a qualitative case approach is used (Yin, 1984) and a collective case study design is adopted (Stake, 1995). Collective case studies allow working with a large study group (e.g., countries all around the world) and further allow researchers to reach representative conclusions. In this study, each case depicts the general overview, reflections from the educational landscape, lessons learned, suggestions and overall country-based evaluation. As a qualitative case study, each country-based contribution allows readers to put their own interpretation as well as the synthesis provided. Besides, using the same outline in each case, the research further allows readers to compare and contrast cases among each other (Bartlett, & Vavrus, 2016).

The research context is cross-continental and therefore examines interruption of education in a real-world context to "discover how people [and countries in a broader level] cope and thrive in that setting" (Yin, 2011, p. 3). In order to reach a broader global view, each continent was represented by enough number of countries. By reaching internal and external networks, authors were invited to contribute this study who were witnessing the Covid-19 days and, therefore, were able to report cases from their countries heuristically, which is useful to report self-experiences and observations (Douglass, & Moustakas,1985; Moustakas, 1990). In such approaches, it is important to be an insider (Djuraskovic, & Arthur, 2011) to better reflect the experiences and observations, and load meaning to the cases in question (Douglass, & Moustakas,1985).

Credibility and validity of qualitative research can be ensured through different approaches (Creswell, 2012; Foster, 1997; Oppermann, 2000) and researcher triangulation is one way of ensuring the validity of the research (Denzin, 1978) which refers to using different researchers from different backgrounds.

In this research, multiple researchers contributed with their observations and their witnesses which provided a rich volume of data to examine and to gain a pluralistic view.

This study acknowledges its strengths and limitations. The strength of this study lies in its ability to examine different cases across the globe from different socio-cultural contexts which provides a holistic view. In addition to its strength, however, there are some limitations to acknowledge. First, the country-based cases are reported by researchers subject to their own interpretation and can be subjective to some extent. Second, while each continent is represented by enough number of countries, the reflexes to interruption of education can be different from the cases in different countries.

Reflections from Countries

The following section provides cases from 31 countries (Figure 1) which were classified according to the continents they are located in and listed alphabetically. By June 2020, the estimated world population is 7.794.000.000 and the countries contributed with case reports to this research represent 62.7% of the whole world population with approximately 4.888.000.000 people who live in these countries.

This study, comprehensive in nature, involved many co-authors and presented a total of 31 cases. Rather than adopting a traditional format, it is in a report form and each case independently has its own value. While it is a long study with many cases, based on form vs function argument, authors of this study take the position that such a contribution is urgently needed to see where we are, to understand where we are going and to know what to do in during and after Covid19 pandemic.

Country-based cases provide a general overview, reflections from the educational landscape, lessons learned, suggestions, and overall country-based evaluation. Such an outline allows readers to individually read each case and add their own interpretations or compare and contrast different cases.

Figure 1. Countries represented in the research.

In this study, Asia, where the Covid-19 crisis was first identified, is represented by seven countries: China, India, Japan, Philippines, Russia, Saudi Arabia, and South Korea (Set 1). Following that, Africa is represented by seven countries: Algeria, Egypt, Ghana, Kenya, Namibia, South Africa, and Uganda (Set 2). Europe, with cases from nine countries, represented by France, Greece, Ireland, Romania, Spain, Sweden, the Netherlands, Turkey, and the United Kingdom (Set 3). While Australia/Oceania is represented by only one country which is Australia (Set 4), North America is represented by two cases from Canada and the US (Set 5). South America, where the characteristics of the geography is generally rough, is represented by five countries: Argentina, Brazil, Mexico, Peru and Uruguay (Set 6).

Synthesis of the Cases

The country cases, provided throughout this study, revealed many similarities and differences and many important issues to consider. However, beyond these issues, one of the important contributions these cases make is the provision of a consistent data set on which numerous future specialist analyses could be undertaken. The case reports provide many avenues for future research which we touch on briefly in this section.

As a result of the interruption of education due to Covid-19 pandemic, nations responded in many different ways. For instance, while some countries provided multiple entry points, technology/media choices and different paths for learners to follow, some countries relied heavily on synchronous and asynchronous online technologies. Many countries focussed their efforts on providing digital "content" or "materials", both in K12 and higher education levels, particularly those with the existing lecture or content-centric practices. In addition to online technology-centric solutions, some countries also used technologies popular from earlier generations of distance education i.e. printed materials (e.g., activities, workbooks and textbooks), radio and TV to deliver educational contents. These mass communication systems were important in many countries to deal with digital divides and access issues, and to address concerns that *no learners are left behind.* From this perspective, the crisis showed us that no single technology is superior to other ones and different technologies, if used purposefully and adequately, can serve well to facilitate education. Perhaps with so many different approaches and technologies used, it should be no surprise that there was also no consistent terminology for the practices during the Covid-19 pandemic e.g., distance education, e-learning, online education, emergency teaching were all used.

In pivoting to online emergency remote education, LMSs (e.g., Moodle, Canvas, Blackboard, Edmodo, Google Classroom, etc.), synchronous communication and conferencing tools (e.g., Zoom, Microsoft Teams, Google Meet, Webex, etc.) and live broadcasting features of social networking sites (e.g., Facebook Live, Instagram Live, etc.) were widely used. In countries, where broadband internet was partly available, or the necessary infrastructure was not available, mobile technologies were used to communicate and deliver educational content. In such cases, it was generally observed that social networking and instant communication tools (e.g., Facebook, WhatsApp, etc.) were used to create communication channels among students, parents, educators, and school administrators. Such an observation implies the importance of freely available tools and further highlights the main ingredients of social learning, that is, communication. In addition to the above technology-centric observations, the change in pedagogy is worth mentioning because, in contrast to the visible impact of the technology, the invisible impact of pedagogies is argued to be deeper and long-term. It is maybe the first time in contemporary history, learners (and parents in the case of K12) are given such a great agency and responsibility for their learning. In many countries, rigid or "lock-step" curriculum was rejected, willingly and by necessity, its so-called robust assessment and evaluation approaches and, instead, applied approaches based on meaning-making and progress and defined by the values and interests of learners and parents. It is too early to reach a conclusion; however, we will see if what was happening is a renaissance or destruction of education.

The cases also show that a fair degree of educational continuity has been achieved in most of the cases through the use of a wide range of technologies, tools and social support. However, the process has required a huge effort from all participants - teachers, students, parents and administrators, and, as well as very creative solutions, there have been numerous problems and some failures. As reported in different cases, it was not so much the technology but a lack of planning, coordination, communication and management which placed a heavy burden on students, parents and teachers. This is consistent with decades of literature on how to manage distance education. Consequently, there were many complaints and students expressed their dissatisfaction. It was a real challenge for many, especially for the organisations, teachers and students who were new to online or distance learning. In some countries, where there was not enough guidance and support, many educators across the globe replicated face to face practices during the process of pivoting to online which not unexpectedly ended up with unsatisfactory learning experiences.

The risk with these negative experiences is that those new to online and distance learning will presume all online and distance education is poor quality when this is clearly not the case. Such negative experiences promote sealing and forging already existing negative impression of online distance education. Success and failure stories will quite likely affect the future and prosperity of distance

education. For this reason, we strongly recommend that the term “emergency remote education” is used to describe the mass changes made during Covid-19 and other similar crises, to denote an activity that arises out of necessity and with necessary haste. The term online or distance education should be reserved for the quality, well-planned activities on which the field of research and practice is based. Educators and institutions are recommended to continue to clearly delineate emergency remote education from online and distance learning in their communications, plans and actions.

We also learned by experience that the soft skills and digital competencies were necessary for the implementation of the emergency remote education. Unless we can use the tools effectively, investing in hard technologies (e.g., broadband internet, computers, mobile technologies, etc.) will not contribute to creating success stories. However, soft technologies (e.g., competencies, skills, etc.) are equally important and we need the right mix, a harmony between these technologies.

In addition to the above observations regarding the implementation of emergency remote education, there are some other issues to point out. In many countries, both developed and developing, the digital divide was obvious, and in fact, triggered social divide and inequity in education. Inequity prevented many students from getting one of the basic human rights, that is, education. During the Covid-19 pandemic, those who were already vulnerable and exposed to social injustice had the hardest hits. In many countries, there were measures to lessen inequity, but this does not change the fact that these measures worked only to some extent.

In these traumatic times, psychological pressure and anxiety were prevalent among students, teachers, and families. Among many, the uncertainty and fear of the unknown in every layer of our lives were the main reasons. These concerns, in some cases, were as contagious as the Coronavirus and affected learning climates. Everybody, at a global scale, encountered difficulties and faced traumatic issues caused by the digital divide, social injustice, and inequality, and in some cases, doubled by physical or social loneliness. Such a view reminds us of the importance of pedagogy of care. Whether in K12 or Higher Education, pedagogy of care is needed in these traumatic times because care is one of the basic needs when we navigate on unknown territories, experience new approaches and stick to our lives during the lockdown days.

Collaboration and sharing, among the individuals and institutions, were the first reflex in many countries and these countries were able to soften the first wave of the Covid-19 crisis. Support communities and mechanisms were effective, and their scope included financial, emotional, and pedagogic support. Sharing was a key act and we witnessed the importance of openness in education and its derivations (Open educational practices, open educational resources, open scholarship, open data, and open science). Besides, ignoring licencing requirements and prioritizing sharing and caring motives, there were many open educational practices which were unwitting and unintentional.

The crisis also taught us the emerging roles of the parents and the invisible roles of the schools and universities. In the absence of teachers and schools, during emergency remote education, many parents took the educational roles to supervise or support the students, and most importantly, to ensure the continuity of the education. It should be further acknowledged that women, during these hard times, took most of the responsibility and supported their families and their societies. Schools, in the same manner, appeared to have invisible roles. Many country cases reported that schools and universities, in fact, were sheltering many students and these buildings were the places where a considerable number of students were getting their basic needs.

This study provided a global outlook and depicted how different countries survived to keep teaching and learning during the Covid-19 pandemic. However, what may cause interruption of education is not limited to pandemics, but includes earthquakes, floods and other natural crises that we may face in the future. Additionally, education of interruption is not limited to natural disasters; wars, civil conflicts, cultural constraints, social restrictions and more may also lead to such interruptions. The question is not what we did in Covid-19 pandemic, but what we will do for upcoming interruptions? Will we learn from our mistakes or will we repeat our mistakes? And importantly, what can we take out of emergency remote education and bring into our “business as usual” education practices? Are we prepared to provide students with more flexibility about where, when, and how they learn? Are we prepared to provide educators with more flexibility about objectives, lessons and assessments? Will we invest in more robust planning, systems, tools and training for distance, online and blended learning to become part of the new normal? Other questions emerge about the equity of education and the selection of technology.

Will we ensure students and parents have a say in the technologies we consider adopting - now and in future crises? Will we invest in families and infrastructure to reduce inequality and digital divides? These are all issues that have been simmering for some time, which have become even more obvious with Covid-19. If we could invest to reduce inequality and build educator and institutional capacity, we would clearly be in a far better position to weather pandemics and all future crises. The synthesis of this research concludes that, as well as creating problems in the educational landscape peculiar to Covid-19, the pandemic, in fact, exposed and surfaced already existing problems.

Cases by Continents and Countries

The following section presents the cases by continents and countries which are listed alphabetically.

Asia

China

Overview

China has a population of 1.4B, with nearly 200M K12 students and over 45M HE students (the latest statistics of 2018). The general public became aware of the seriousness of Covid-19 for the first time on January 20, 2020, when Prof. Nanshan Zhong, Academician of Chinese Academy of Engineering, confirmed human-to-human transmission of coronavirus five days before the most important festival – the traditional Chinese New Year. Three days later, on January 23, Wuhan, where the outbreak started in China, was locked down. And soon afterwards, the whole country stood almost still gradually. People were in panic, upset and frustrated but did not expect the virus should be lingering on for so long. As time went on, more and more protective and preventive measures were rolled out, such as wearing surgical masks, monitoring body temperature, staying/working-at-home, extending paid leaves, neighborhood voluntary service, social distancing, neighbourhood isolation, closures (educational institutions, restaurants, cinemas, museums, libraries, entertainment & sports facilities and other places for public gathering), and quarantining people with suspected symptoms and people from the most infected areas. All these compulsory measures were so timely and effective that they worked! China was able to control the spread of Covid-19 within a relatively short timeframe.

Now life is returning to normal gradually. But when schools can be reopened is up to each provincial government, depending on the local situation. Qinghai, an inland province in Northwest China, became the first to reopen its K12 schools on March 9, 2020. By the end of April 2020, all the provinces have started to reopen their secondary schools, grade by grade, beginning with the graduating-year students. Upon the completion of writing this study, other educational institutions, including universities and primary schools, are also already starting to reopen although some HEIs have no plan to reopen for the spring term.

Reflections from the educational landscape

The epidemic occurred during the winter vacation and the spring semester was to begin in mid-February. The Ministry of Education (MoE) was quick to take a proactive approach on January 29 by requiring all schools to take advantage of online platforms to ensure no disruption of learning and teaching when the new semester began and the schools remained closed. To prevent students from indulging online, MoE spelt out different maximum online learning hours for students at different grade levels in the K12 sector, emphasizing that participation in emergency remote education by pupils at lower elementary grades was not encouraged. A week later, on February 5, 2020, MoE issued its guidelines on online teaching organization and management for HEIs, ranging from the use of online courses/OERs, virtual simulation experiments and quality assurance to learner support and teacher support and training. All at once, educational institutions at all levels across the country plunged into the preparation of emergency remote education, mostly by asking teachers to lecture live/in real-time or in the form of recorded lecture videos, like a normal academic session. Many universities also resorted to MOOCs offered by themselves or other Chinese universities. Although screencasts and/or other lecture videos were accessible asynchronously, K12 schools usually followed the normal face to face routine schedule (for example, four morning sessions, each for a subject, e.g. maths, physics, English and Chinese). Emergency remote education was both computer/internet-based and in mobile mode although TV was also used for K12 students in remote areas or from lower socioeconomic backgrounds. Social media was frequently used as a venue for learner support.

Emergency remote education proved to be a great challenge for the majority of K12 teachers, especially senior ones, but less challenging for university teachers. This was because there had been few online elements in K12 classrooms in China. K12 teachers were overwhelmed by the deep learning curve involved and there seemed to be some chaos at the beginning. Complaints both from teachers and the general public caught the attention of MoE which immediately took actions to redress this tendency, for example, by recommending the use of already available OERs or suggesting leading teachers share their 'lectures' among their peers rather than requiring all teachers to showcase their own resources. MoE also reiterated that emergency remote education was only part of the response to school closures and that there should be other arrangements to help students go through this difficult situation academically and psychologically.

K12 students might find it fun to experience the novelty of online learning, a typical example of digital irony given that they had usually not been allowed to even use their mobile phone at school, and perhaps at home by some parents before this crisis (Brander, 2020). But when the novelty wore off, they missed campus life. As for home-bound universities students, they had many other things to worry about.

Since parents are also significant stakeholders especially of K12 education, their reactions may be worth a word. Overall, parents would like to see their kids on campus rather than study online at home.

Lessons learned

No doubt, emergency remote education was the best and perhaps the only option to help cope with school closures during the Covid-19 pandemic. MoE's guidelines were clear and constructive. Nevertheless, there were issues beyond the control of MoE, for example, digital divide, accessibility and infrastructure. Lessons learned from these issues will be discussed when making suggestions for different stakeholders. I will focus on issues within the scope of education.

Misconceptions in practice are a universal phenomenon. Despite MoE's sensible arrangements and guidelines, schools, especially in the K12 sector, appeared to have overreacted, especially at the beginning, for example, by requiring all teachers to teach live online or use recorded lecture videos and all students to clock in by logging in to the specified system every day. As mentioned earlier, K12 schools usually stuck to the normal face to face routine schedule and school education was reduced to emergency remote education online although the situation improved gradually.

Pedagogy of care merits additional attention. The current tendency is favouring pedagogy of subject knowledge over pedagogy of care. K12 teachers may be more sensitive to their students' emotional reactions and taking appropriate measures to help them overcome negative emotions because this is part of their job in the face to face setting. In contrast, university teachers may be less sensitive in this regard because university students are often taken to be adults of mature personality and with the capability to regulate their mood.

Traumatic/psychological issues caused by the digital divide, poor accessibility, social injustice/inequality, and/or inadequate infrastructure as well as physical loneliness should also be attended to both in a proactive and reactive manner although attempts have also been made to mitigate the negative impacts of these problems on teaching and learning in this crisis. It should be noted that both students and teachers may encounter these problems, in particular in the K12 sector.

Suggestions

For policymakers/MoE, any response strategy needs to balance influence from different factors. Otherwise, emergency remote education is likely to deepen social injustice and inequality rather than bridge the gap (Olcott, 2020). It is true that no single solution works equally effectively for all cohorts. Hence the need to provide alternative options to cater for learners who are disadvantaged due to the digital divide, poor accessibility and/or inadequate infrastructure (Bates, 2020). It is equally important that these alternative or 'corrective' measures should be kept in low profile to minimize perceived inferiority among beneficiaries.

For schools/universities, emergency remote education is at best a crash program and by no means represents all that can be done to respond to such a pandemic. On the one hand, going online or high-tech-enhanced teaching is not a panacea for everything. Learning may happen equally well, if not more effectively, in low-tech or no-tech settings. What matters is the design. On the other hand, in addition to subject knowledge, there are many other things that can and should be learned which are part of campus

life. Institutional leaders should get out of the panic to deal with the urgency rather than be complacent with any convenient emergency remote education approach (Olcott, 2020).

For teachers, think of what emergency remote education can and cannot do under the circumstances of your particular contexts and make a list of things that can and should be done in addition to subject knowledge in ways other than emergency remote education. Also, be aware that it is unethical and unfair to shift some of your teaching functions to parents because you may be asking parents to do the impossible if they are not in any position to fulfil tutoring functions or if they are unwilling to even if they can. Especially in the first case, children may get hurt psychologically! Also, learn to adapt and use OERs if appropriate rather than spend time producing poor-quality resources of your own. Finally, reflect on successes and failures and keep pedagogy agile as well as integrate Lessons learned into routine work after the crisis.

For learners/students, share your experience frankly and honestly with your teachers. Ask for help either from peers or teachers if need be. Talk to friends or parents if you feel not right and cannot overcome negative emotions. In a word, do not attempt to cope with all the ramifications of such a new and unexpected way of life on your own!

Overall country-based evaluation

Technology is not a panacea and face to face instruction is not replaceable, as Neil Selwyn reminds us (Monash University, 2020). This is a very clear lesson from our previous ODL practice and witnessed again in our fight against Covid-19, which is endorsed by the students' eagerness to return to school and the big smiles on their face back on campus hitting the headlines of school reopening in China. Emergency remote education is a must when responding to such a global disaster. But more can and should be done to more effectively minimize the ramifications and help students get through the hardship. I am not judging any party for what may have been done better. After all, the current crisis is unprecedented and all stakeholders have tried their best. Overall, the actions of the Chinese education authorities and education community during Covid-19 are truly praiseworthy.

Japan

Overview

In Japan, from the first case was confirmed on January 16th until the delay of the 2020 Summer Olympics was announced on March 24th, all seemed to be well controlled with around 1,000 infected cases and 40 deaths. But since then, it has observed the surge of coronavirus across all regions of the country, reaching 14,831 infected cases with 448 deaths as of May 1, 2020. Japan has been maintaining strict restraints on testing for coronavirus and admitting to a hospital. Many people feel vulnerable to the coronavirus and have a fear of death once infected.

With a population of 125M, Japan has 10,878 kindergartens (around 1.3M children), 20,095 elementary schools (around 6.5M students), 10,325 middle schools (over 3.3M students), 4,907 high schools (around 3.2M students), and over 1,200 higher education institutions including 778 4-year universities, 395 2-year colleges, a private cyber university and Open University of Japan (over 2.9M university students and around 100,000 distance learners).

Japan declared the state of emergency to Tokyo and six hard-hit prefectures in early April and later extended to the remaining 40 prefectures. But this is not a lockdown. People are requested to stay home and avoid nonessential trips, but there are no legal restrictions on travel and opening business. While face masks are widely used in Japan, social distancing is hard for many people especially who live in compact cities or who must commute in crowded trains to go to work. Around 10% of the Japanese employees work from home. Japanese office culture requiring to produce paperwork, peer pressure to come to work, and lack of necessary digital infrastructure at home are found to be a few main reasons that prevent the employees from working from home.

Reflections from the educational landscape

The Japanese government announced the school closing on February 27th which affected around 13M students at more than 34,500 schools. All schools were requested to remain closed until the end of March with a hope to control Covid-19 at the early stage so that Tokyo Olympics could be open as

planned. But many educators and parents expressed their doubt on the effectiveness of this sudden measure of school closing in preventing the spread of the virus.

With the declaration of the state of emergency on April 7th, school closing has been extended until the end of Japanese 1-week long golden week break, May 6th. Anticipating that the state of emergency will be extended beyond May 6th, several prefectures have already announced the extension of school closing until the end of May. The government is now considering the introduction of a school year starting in September rather than in April, amid school closing due to the coronavirus crisis. Opposition political parties and experts expressed their concerns and suggested such options as emergency remote education or summer supplementary classes rather than changing the start of the school year to September.

During the school closing, most schools have been offering some kinds of self-learning support by sending print materials via email and/or pre-recorded video lectures shared on YouTube or online platforms such as Classi, Google Classroom and Google Drive. Some schools have gone further and provided synchronous interactive sessions using Zoom or another synchronous communication tool together with digitized materials to help students stay motivated in remote learning, especially in a few main subject areas. However, educators and parents are worried about learning loss and declining global competitiveness of future generations during the school closing period. Interestingly, several cram schools (private, for-profit, fee-paying prep schools) have been offering totally online courses and attracted many students during this period.

Many of the Japanese universities have decided to delay the opening of spring term until May 6th or until the end of May. During this closing period, some universities which are not ready to offer their courses online have begun to set up an LMS, strengthen their infrastructure and train faculty members while other universities with more advanced infrastructure and online teaching experience have offered emergency remote education. It is likely that more universities will begin to offer emergency remote education after May 6th or as soon as they are ready. Several universities plan to provide students with cash (between 80 – 460 USD) to help them with costs related to taking online courses, some will reduce tuition fees while others plan to offer emergency scholarships without reducing tuition fees.

Faculty members who are generally not familiar with ICT use in teaching have been in a complete panic and spent a great deal of time in preparing lectures since emergency remote education was first announced. Students have expressed worries about limited internet connection and data usage on their mobile phone as quite a few Japanese students live in a place where there is no internet connection and thus depend on mobile phones for internet access.

Lessons learned

Continuous delay of school starting instead of moving classes online seems to highlight a weak point in Japanese education. Japan has been the world leader in high technologies. However, unfortunately, it has lagged in introducing and utilizing technology into school and university systems and educators are generally not competent with ICT-enhanced teaching practices. While the Covid-19 crisis has brought about challenges and anxiety that teachers, students and parents have never experienced before, it can offer the Japanese schools and universities an opportunity to finally move forward with preparations to enhance their ICT and e-learning readiness by improving classroom infrastructure, promoting capacity building of teachers and students, developing flexible academic policies and guidelines, and making changes in perception of online learning.

Suggestions

Suggestions for policymakers: Policymakers should develop a cohesive framework and action strategies for education during the crisis, not for political reasons, and move swiftly to implement those options, at both national and local levels. Otherwise, there would be confusion and delay in decision-making at institutional and personal levels.

Suggestions for schools/universities: Schools and universities should make a decision as to whether they should prepare for emergency remote education without further delay and mobilize and provide necessary resources and support for teachers and faculty members to confidently move to remote teaching.

Suggestions for educators: Teachers and faculty members need to continuously improve ICT skills and develop effective pedagogical strategies to provide high-quality remote education. Peer collaboration and support using social media is strongly recommended as most schools and universities suffer from lack of resources.

Suggestions for learners/students: Students are to develop self-directed learning and time management habits as they are not quite familiar with online learning environments.

Overall country-based evaluation

It is too early to evaluate the process, outcomes and impacts of emergency remote education in Japan as many schools and universities have not yet introduced such change. Considering lack of ICT infrastructure for large-scale emergency remote education in elementary, middle and high schools, teachers' reluctance in pushing for change, and overall negative attitudes of students and parents towards online education, Japan may change the start of the school year from April to September instead of introducing emergency remote education in the schools. On the other hand, the universities are more likely to begin or continue to offer online classes during the spring term. Effects of emergency remote education in Japanese higher education are yet to be seen.

India

Overview

As of May 22, 2020, there were 66330 active cases of Covid-19 pandemic, 3583 deaths and 48533 recovered cases in India (GOI, 2020). The first case was reported on January 30, 2020. The rate of infection was 1.7, which looks lower than in the badly affected countries. The situation started becoming serious by early March 2020 and thus on March 22, 2020, a 14-hour voluntary nation-wide public curfew was observed. Then on March 24, 2020, to contain the spread of the virus, a 21 day nationwide lockdown was declared by the prime minister. This was the phase of Lockdown 1.0. Social distancing to break the cycle of infection was highly promoted. The data from the central health ministry confirmed 564 cases as on 24 March. To contain the further spread, all domestic flights were suspended and strict punitive actions against violators were announced. On April 14, 2020, another announcement was made (Lockdown 2.0) for extending it till 3rd May. In this phase, containment zones or hotspots were identified to restrict people movement. With the situation not improving, Lockdown 3.0 was enforced on May 1, 2020, by extending the lockdown by two more weeks till May 17, 2020. Since the identification of the first case, India began thermal screening of passengers entering India but still, some people were not detected by consuming certain medicines before landing to lower the body temperature. Soon quarantine centres were established and Personal Protective Equipment (PPE) materials were arranged for health, security, and other things. It was in March 2020 that all educational institutions were ordered to be closed. Initially, education was suspended, however, following that, educational buildings were closed, and full movement of non-essential services was banned. This situation brought hardships for labourer classes or migrants because they were unable to return to their homeland or earn their livelihood due to complete lockdown.

India is the largest democracy and 7th largest country in the world with a total area of 3.3M sq.km. It lies entirely in the Northern Hemisphere, separated from mainland Asia by the Himalayas (KnowIndia, 2020). India is surrounded by the Bay of Bengal in the east, the Arabian Sea in the west and the Indian Ocean to the south. The population of India is 1.3B (World Population Review, 2020). According to the Government of India 2011 Census, the literacy rate stood at 74.04 per cent (82.14% for males and 65.46% for females). SDG India Index 1.0 (launched in December 2018) had 62 indicators, while the recent SDGII 2.0 had 100 indicators. According to the report, the Adjusted Net Enrolment Ratio at Elementary (Class 1-8) and Secondary (Class 9-10) schools in India was 75.83. 2.97% of children in the age group 6-13 years were out of school. The average annual drop-out rate at the secondary level was 19.89 % According to the All India Survey on Higher Education report 2018-19, 26.3% of students in the age group of 18-23 years were enrolled in higher education (GOI, 2019). There are currently around 1000 universities and 40,000 colleges in India. Out of the total enrolment of around 37M, 29M are enrolled at Under-Graduate courses (79.8%). Females constitute 48.6% of the total enrolment in higher education. Gross Enrolment Ratio (GER) in Higher education is 26.3% for 18-23 years of age group. India has a very vast distance education network with around 10.62% of the total enrolment in higher education (out of which 44.12% are female students). In regular mode institutions, the pupil-teacher ratio in universities and colleges is 29. The data from Unified District Information System for

Education (U-DISE 2018-19) (Department of School Education and Literacy, Ministry of Human Resource Development) indicates that there were 1.550.006 schools in India with more numbers in rural areas (1304000) than in urban area (246000), with 9416895 teachers (nearly equal ratio). They served 247M students at the K12 level. An important development was the Constitution (Eighty-sixth Amendment) Act, 2002 inserted Article 21-A in the Constitution of India to provide free and compulsory education of all children in the age group of six to fourteen years as a Fundamental Right.

The reaction to and measures put in place to the lockdowns were differential. There were hard times as people were stranded because there was no means for travel. Many people had to walk long kilometers on foot (some deaths were reported due to hunger, fatigue and bad weather, as summers arrived in India). A surge in infection among health and police or security personnel was also noted. To deal with the deteriorating economy of the country, a few days ago, the Government of India announced 'Atmanirbhar Bharat Abhiyan economic package' to promote self-reliance and supporting local manufacturers and industries. Efforts were strengthened to make use of technology, spreading awareness using ‘Arogyasetu app’ and focusing on producing a vaccine to cure the pandemic.

Reflections from the educational landscape

The initial reaction to the pandemic was not serious. In the beginning, only the teaching was suspended but the teachers and staff were required to continue. According to UNESCO, the total number of affected learners was 320,713,810. This comprises around 10M at pre-primary, 75M at primary, 133M at secondary and 34M at tertiary level (UNESCO, 2020a). Later on, due to pressure and the fact that the virus affects anyone and everyone, institutions were ordered to be closed. By sensing the seriousness and urgency to curtain the spread of the pandemic, the University Grants Commission (UGC) in its first letter (March 5, 2020, and then March 14, 2020) on this issue advised all higher education institutions to take preventive measures, like avoiding large gathering on campus, monitoring and home quarantine for 14 days of any student/staff with travel history to any Covid-19 affected country etc. Teaching was still not suspended, however, following the increasing corona cases, UGC on March 18, 2020, reiterated the directive of Ministry of Human Resource Development (MHRD) about adopting adequate precautionary measures like rescheduling all ongoing university evaluation and examinations after March 31 (but it looks it may not happen before June or July); maintaining regular communication with students and teachers through electronic means, notify helpline numbers/emails for students to access in case of need.

When the infection started spreading a bit faster, UGC on March 21, 2020, said that faculty members/researchers/non-teaching staff were permitted to work from home till 31st March (which got prolonged subsequently as the lockdown got extended). Faculty members/researchers were advised to utilise this period for various academic activities such as: developing on-line content, on-line teaching and on-line evaluation; preparing lesson plans and developing instructional material for the courses to be offered during next academic year/semester; carrying on research, writing papers/articles; preparing innovative questions for question bank and preparing innovative projects on 'Ek Bharat Shreshtha Bharat'. It was further informed that this period shall be counted as being on duty for all the faculty members/researchers/non-teaching staff including ad-hoc and contract teachers (with the valid contract up to March 31, 2020). Students who were staying in hostels (particularly foreign students) were allowed to continue to stay there by following all precautions. To support the relief efforts teachers and staff across the country donated an equivalent of one day salary to the Prime Minister's/Chief Minister's relief fund.

With the purpose of addressing major challenges being faced by Indian higher education, viz., employability of graduates, upholding state-of-the-art curriculum, enrichment and maintenance of quality teaching, research and service, adoption of ICT for teaching-learning and preparing the next generation as socially responsible citizens and leaders, the University Grants Commission on March 28, 2020, suggested a “UGC Quality Mandate: Suggestive Academic Activities” for improving Quality in Higher Education Institutions. For this purpose, universities were asked to constitute Task Groups for developing Institutional Implementation Plan for the Quality Mandate Initiatives.

Many institutes in India have successfully adopted eLearning for quite some time (Sharma, 2001; 2005), however, the days during the lockdowns in Covid-19 pandemic were the boom time for various web-conferencing tools, especially the ZOOM software. Like global, there were concerns in India too about the security breach for ZOOM and thus its usage was discouraged and alternatives like Google Meet or Cisco WebEx were used. This led to a sudden surge in online synchronous classes. Instant chat

messaging had been in use already in Indian educational institutions, WhatsApp being the most popular. The University Grants Commission wrote to all universities and colleges on March 25, 2020 advising teachers and students to utilise their time productively by engaging in on-line learning. They were advised to make use of ICT initiatives offered through digital platforms of the Ministry of Human Resource Development, University Grants Commission, Information and Library Network and Consortium of Educational Communication. Some of such ICT initiatives are SWAYAM (Study Webs of Active–Learning for Young Aspiring Minds) MOOCs, e-PG Pathshala (curriculum based, interactive e-content for post graduate courses), Swayam Prabha (a group of free to air 32 DTH Channels), Consortium for Educational Communication - University Grants Commission (CEC-UGC) YouTube Channel, National Digital Library, Shodhganga (a digital repository of Indian electronic theses and dissertations for research students), e-Shodh Sindhu (more than 15000 core and peer-reviewed journals, bibliographic, citation and factual databases) and Vidwan (database of experts) etc.

The reaction to 'emergency remote education' by teachers has been overwhelming. Teachers who were proficient in ICT quickly switched to web-conferencing tools, whereas the majority of others found it difficult to use such platforms. Universities conducted training programmes for faculty to train them for teaching using online resources and creation of eContent. The MHRD and the UGC emphasized to continue with the teaching-learning process using online modes such as Google Classroom, Google Hangout, Cisco WebEx Meeting, YouTube Streaming, SWAYAM MOOC Platform and SWAYAMPRABHA (available on Doordarshan / satellite TV and Dish TV), etc. However, there is a serious concern about the pedagogy of online teaching-learning not being followed. Teachers merely did the teaching by sitting in front of the camera, now that they were not standing in front of students in a classroom.

Due to lockdowns, there being no alternative, students were made to attend online classes. Complaints and challenges were brought to notice of teachers and administration, prominent among them being many students not having computers or laptops at their homes. Simultaneous scheduling of online classes by teachers pressurised the net data package of the students, which they normally get around 1.5 Gb per day and getting it exhausted fast as video-based conferencing consumes more than granted amount. There was another wrong notion that since all the students were at home, they had a lot of time. This wrong assumption affected carrying out household chores, the mental health of students (Sharma, 2020). Cases of domestic abuse and violence were also reported. Based on the very broad brainstorming on Sharma (2020) Facebook post, Harashim (2020) summarised the discussion. A major problem (or THE major problem) was the focus on teaching (transmitting content), rather than facilitating learning in online education. This had long been a problem that had become intensified with the crisis of Covid-19 whereby face to face schools were being closed. Further, teachers/students were forced to go online, however few knew how to teach and learn online as being in the state of unpreparedness. There was inadequate or no quality training on how to teach effectively online. Despite criticism of problems, few posters identified which online education pedagogies or processes were the key. Few posters provided evidence of which pedagogies "work" and define what that meant. There was little discussion on pedagogical approaches as an issue. Teachers were being forced to teach in a particular way: i.e., video conferencing/Zooming. Several questions pertained to whether students were really following the Zoom/video conferencing lectures? Was it effective? There were deep and disturbing ethical and legal issues in sharing photos and information of students in online education classrooms (Sharma, 2020).

Suggestions

Suggestions for policymakers: Bringing out policy on on-line pedagogy, which seems to be the biggest miss in the current scenario. Supporting institutions with adequate Internet bandwidth where it is yet to be provided, many still need it.

Suggestions for schools/universities: Supporting students with some financial aid towards internet data-package. Conducting more faculty development programmes to train teachers for proper online teaching rather than taking care of temporary emergency remote education. Training aspect needs to focus on making teachers as designers of learning.

Suggestions for educators: The teachers need to actually open up their mind and break the bondage that they have. This bondage is not of any resource limitation but a psychological procrastination they have imposed upon themselves. They seem to have some fear and reluctance when it comes to adapting to technology. During this lockdown, teachers have attended a number of workshops but still

stay away from an innovative temperament. They must not forget that the question is not about how many resources they have, rather it is about how they use the resources they have in hand and how they make their students use them. A piece of advice for teachers is that technology also changes the way teachers teach. So far, more focus has been on face to face teaching and thus online learning was never a part of regular exposure. When no one knows what it is for, how can we expect them to take it in the right direction? Teachers need to understand the attributes of effective online teaching and learning. Blended and flipped learning models have proven worth. Teachers need to be facilitators, not at all ring masters who insist on Compliance.

Suggestions for learners/students: Students should become self-directed learners as the Internet offers great opportunities for learning. The students need to have the temperament which will not stop them from adapting and adopting to the new and old tools of Technology. They will also need one of the primary 21st-century skills which is called collaboration because without the sense and spirit of collaboration they cannot collaborate with the teacher and they will also not learn the skills which are desired. The students should be taking initiatives to handle their technological limitations and they should also understand how they can integrate the technological advancements to their career communication. The students need to realise how they can leverage the technological developments around them with relation to their career planning because if they do not interact well with the technology now they may not be able to get the jobs of the future. They need to prepare for a world which is in the future not exactly in the present.

Overall country based evaluation

Keeping in view the second largest populated country in the world, big economic diversity, social structures, India has demonstrated good leadership in putting measures in place to contain the virus. There have been hardships for people, especially those who are daily wagers or migrant workers as lockdown left them with no source of income or feeding themselves. The education sector was significantly impacted. There was a sudden surge in all shifting to teaching via the Internet. Every day, hundreds of webinars were conducted. It is funny to note that many teachers were registering in such webinars or faculty development programmes just to obtain a participation certificate so that it might be useful to them for their promotion. Large numbers of participants (600 to 800 in many cases), long continuous hours from 10 a.m. to 5 p.m. (with some time break for lunch or tea) was the new common. The trainers delivered training to teachers, but the attainment of online skills is not known. Feedback is obtained after such training programmes, but it is hardly shared with trainers for any improvement or change in training strategy. Of course, the training organisers may be using that feedback for any decision internally. Despite these training, there is little evidence of creating eContent or of online teaching.

Students and parents equally felt tired, more so in the case of younger students. Technical issues such as adequate Internet data and laptop/desktop have come to the fore. Statista (2020) reports that internet penetration in India is around 50%. Mindless organisation of online classes is not doing any good. A plethora of webinars is being offered with either a prefix or suffix of Covid-19. There is a need for clarity of what will happen when the lockdown is over. Will we revert to face to face instructions as was in the pre-Covid-19 era? Will we go more blended as now people have realised the potential of online technologies and emergency remote education?

Indeed, there is scepticism about conducting online examinations for fear of cheating. Authorities and universities are not ready for online examinations. emergency remote education is mainly being carried out as simple instructional delivery of content or information because it was the only response given the short timeframe. When it comes to skills or technical courses, teachers are still hesitant about the use of online technology for such disciplines. Another rising trend noted is the development of video lessons. Teachers are creating teaching, introductory and explanatory videos to be watched by the students over YouTube or their institutional portal. Convergence between various media technologies would fundamentally alter the way learning is designed, packaged, and delivered to learners. The immediate need of the hour is to bridge the digital divide, all the more when 5G would soon be launched in India.

On May 17, 2020, the Finance Minister to the Government of India announced certain measures as a part of an economic package to boost education during the pandemic. One of them is the launching of 'PM eVIDYA' programme to promote elearning and technology-driven education with equity post-Covid under AatmaNirbharApnaBharat programme. This package includes: extensive use of radio, community radio, podcasts; special e-content for visually and hearing challenged learners, online courses by top

100 ranked universities under National Institutional Ranking Framework; DIKSHA programme for school education where e-content and QR coded textbooks for all grades will be uploaded; and one earmarked TV channel per class from 1 to 12. Making students ready for future skills a relook at the curriculum is a must. Students need to be encouraged for self-learning. Teachers need to teach differently and not merely transfer the information. Education in India is definitely under transition when emergency remote education is removing the physical need of teachers or classrooms. Central and state governments along with private players have initiated various schemes to minimize the negative impact of Covid-19 pandemic on education and to ensure that learning never gets interrupted.

Russian Federation

Reflections from the educational landscape

According to World Population Review (2020), the population of the country is approximately 146M, of which 74% are urban dwellers. In 2017, the total number of students in schools and colleges was 18.6M with 4.2M being in higher education (Bondarenko, Gochberg, & Kovaleva, 2019).

A lockdown for students and teachers was introduced throughout the country from March 23, 2020. The quarantine was introduced in stages, private schools and universities were the first to respond, and public institutions announced the lockdown a few days later. Corporate and military educational institutions continued full-time education for an average of two weeks longer.

Administrative staff and some school and university teachers continued to attend workplaces for an average of 2 weeks. There were varying reasons for this delay, such as lack of necessary equipment at home, use of work computers and other office equipment, necessary documents, holding face to face meetings and meetings to agree on distance work.

There is a prevailing state of mind regarding distance education in Russia. The traditions of Russian education are based on personal communication between a teacher and a student and there is a consensus that digital technologies and tools are unable to educate a person. This prevailing state of mind was present when Russia began emergency remote education.

School management and teachers in most schools had to wait for instructions from the educational authorities. As an exception, some schools (6-10%) independently determined the order and form of the transition of educational programs to emergency remote education. Previously established national systems to support distance learning often could not withstand the influx of users. As a result, schools began to use video communication programmes on a large scale.

The universities mostly used two different strategies. Firstly, those universities who had actively developed their online education programs and had more resources reacted quickly by expanding their practice to all students. The other universities adapted to the transition within two to three weeks. In general, almost all universities used a combined option. Faculty members chose their own learning communication tools (Zoom, Skype, WhatsApp, Telegram, VKontakte, TikTok and others) and the universities provided an LMS for those who were ready to work in these systems. A small number of universities with experience in using LMS, mainly Moodle, Canvas and self-developed LMS, identified them as a prerequisite for teachers and students.

The vast majority of schools and universities use synchronous learning corresponding to the number of hours in the curriculum. The schools are characterized by strict management control by the administration to ensure that the teacher delivers classes at the prescribed time. The means of control are print screens, with an indication of time of the lessons.

Internet connection, access from smartphones, tablets, laptops and, less frequently, desktop computers are being used. In areas with poor or no internet access, telephone connections are used to transfer tasks to schoolchildren. In some of these places, initially, education continued on a paper-based system where students received paper media (notebooks) and completed tasks were placed in boxes for transmission that were installed at a school or in a local shop.

The reaction of teachers was mainly negative. The attitude was "we have to wait until everything is over and we can then go back to school/university". However, it is interesting to note that in recent years we

have heard more and more about the fact that today's students are digital natives, live in a digital world, and they do not need underdeveloped "analogue" teachers. However, the mass transition to digital technologies for education has shown that teachers have mastered them quite quickly (sometimes faster than students) and have regained their reputation in this area.

The response of students was largely determined by the success of faculty and the proper management of the process by the administration. If the attitude of the pedagogical team was positive and constructive, students were involved in the process of distance communication with interest. If the teacher's attitude was controlling, students often deceived the teacher. The main difficulty for most students was the lack of computers, reliable access to the Internet, and difficult living conditions during the lockdown period. Remote learning has also proved to be more successful among senior students rather than juniors.

In those schools that failed to establish an effective learning process, a heavy burden has been placed on parents who have to replace teachers, who limited their work to issuing and checking assignments, as well as to compensate for the lack of live communication between schoolchildren and their peers.

Lessons learned

The correct reaction of educational institutions:

- Students were released on a week's vacation,
- educators have been taught distance technologies from other educators who had experience in online teaching.
- Digital tutors were assigned to the teachers, and a timetable and curriculum for the transition period was developed.

Inappropriate reactions:

- Simulation of a face-to-face learning process in distance form. The number of teaching hours, subjects, forms of assessment - all as in face-to-face teaching.
- Tasks for students became larger than usual due to the misunderstanding of distance learning.

The main source of problems concerns how the administration of an educational institution is managed and how educators managed the learning process. In a situation where the school or university administration provided the necessary support to all staff, faculty and students, worked with a vision for the future and used even simple but system solutions, the transition to emergency remote education was the least traumatic. When the administration made inconsistent decisions, issued formal instructions, or simply withdrew itself, shifting responsibility to teachers and students (and parents in the case of schools), the problems were far greater. In such cases, the sentiments against "distance learning" were particularly strong.

The main problems are caused by the following factors:

- Inequality of financial opportunities (quality of technology, internet, access to other resources).
- Physical and material limitations (number of computers and tablets per family member, taking into account that parents also work from home; finding a place in the house for each family member; availability of sustainable internet connections in the place of residence).
- Insufficient pedagogical (it is normally compensated by the accustomed pattern of work) and digital competence of teachers. This leads to an overload of students either with tasks or the need to attend unnecessarily long video classes.
- Emotional fatigue, overload, and lack of emotional support.

Suggestions

Suggestions for policymakers: Develop a strategy to preserve the learning environment in crisis situations. When developing national projects and all-Russian technical educational platforms, involve independent experts recognized in the professional community.

Suggestions for schools/universities: Analyze the experience of transition to emergency remote education, optimize bottlenecks in management. Improve the ways of accounting for faculty working hours, develop measures to support faculty and students when they work remotely. Identify practices that could be saved for the period after Covid-19.

Suggestions for educators: Work to understand their role in ensuring that students achieve their learning goals and develop the skills they need to do so. Also increase self-awareness, autonomy, and responsibility in professional life.

Suggestions for learners/students: Take responsibility for learning outcomes, learn to cooperate with other students and educators to achieve educational goals. It is also important for parents to understand the role of the school in the development of their children and to learn to act on the basis not only of empty stereotypes that "education (as a process, not as an outcome) is important" or that the school is "a safe place to keep their children safe during the working day".

Overall country-based evaluation

In general, the transition to emergency remote education has occurred. It was more or less successful to organize remote teaching in most programmes and disciplines. Problems persist in many applied areas such as medicine, engineering and art. Some of their training has had to be postponed for a time after the lockdown.

The shift to emergency remote education has had a negative impact on research work in universities due to the increased workload of faculty. Also, scientists, who are deprived of the usual way of exchanging opinions and ideas, note the slowdown of scientific activity.

Over the past month, the range of OERs has expanded significantly, primarily through publishing houses, museums, theatres, and libraries. Some paid courses were also offered on a free basis. There are many free webinars aimed at supporting and training educators.

It is still difficult to determine how the transition to emergency remote education will affect online distance education. So far, there have been claims in society that distance education specialists "have not provided everyone with a comfortable transition". Negative sentiments are also supported by the fact that earlier attempts were made to reduce the budget for education and its large-scale commercialization under the guise of implementing online learning. Nevertheless, it can be hoped that the experience gained in higher education will lead to greater use of new technologies in the learning process.

Saudi Arabia

Overview

On March 2, 2020, the Saudi Ministry of Health confirmed the first case of Covid-19. By March 8, 2020, the Saudi Ministry of Education (MoE) announced that all educational institutions, including public and private schools and universities, technical and vocational training institutions will be physically closed to students, but that education will continue to be provided to all students through online distance education channels without delay. This initial announcement was quickly expanded on March 16, 2020, to include all employees within the education sector, who were required to switch to remote work by utilizing institutionally-adopted digital communication tools such as Microsoft Teams and Blackboard Collaborate. Given Saudi Arabia's bold and timely response to the threat of the Covid-19 pandemic and its clear and consistent efforts in raising awareness about this issue among its population, the switch to emergency remote education was not only expected, but welcomed by educational institutions, students, and parents alike.

Saudi Arabia is a country with a total population of approximately 34M (World Population Review, 2020). The education sector in Saudi Arabia serves about 8M students in total, with approximately 6M of those enrolled in K12 and 1.6M in higher education (UNESCO, 2020a). Saudi Arabia has been investing extensively in the digital transformation of the education sector as part of the Saudi Arabia 2030 Vision and 2020 National Transformation Plan. This can be seen in many of the digital learning initiatives being implemented, such as the establishment of the Notional eLearning Center (previously known as the National Center for eLearning and Distance Learning) and eLearning Deanships and Departments in all Saudi higher education institutions, with Learning Management Systems (LMS) being used in all higher education institutions in tandem with face-to-face instructions. These digital transformation efforts have also been targeted towards the K12 sector including the launching of the Virtual School Platform, Future Gate, Noor platform, and iEN National Education Portal (Al-Asmari & Khan, 2014; Aldiab, Chowdhury, Kootsookos, Alam, & Allhibi, 2019; Al-Ohali et al., 2020).

Different governmental and private sectors in Saudi Arabia responded quickly and swiftly to the Saudi Ministry of Health's calls to implement procedures that, first and foremost, ensure the safety of its citizens and residents, and the educational sector was no exception. Saudi Arabia's swift and strong response to the threat of the Covid-19 spread was clear even before the first case was identified and reported in the country. This was evident in the MoE's proactive actions in not only updating its emergency plans, improving its digital infrastructure and official TV channels, and raising readiness and awareness campaigns that started on February 1, 2020, five weeks prior to the suspension of schools and universities, but also in its coordination with the Ministry of Health and other related authorities by preparing hospitals and university health centers in case of an influx of cases and increase in required hospitalizations (Saudi Press Agency, 2020). Initially, curfews and social distancing campaigns were implemented, which was quickly followed by a complete lockdown in major cities where the number of cases were rising.

Reflections from the educational landscape

Even though both K12 and Higher Education institutions operate under the directive of the Saudi Ministry of Education, there were notable differences in the Ministry's approach to its emergency remote education plans and implementation. For the K12 sector, the MoE's approach was centralized and focused mainly on the asynchronous delivery of content and resources to students through its official MoE digital channels such as iEN National Education Portal, which delivers curriculum content and instruction for all grade levels via 20 satellite TV channels, live and recorded Youtube videos, self-assessment exercises, and downloadable textbooks and learning resources. In coordination with major telecom companies, Internet access was provided for free to all students accessing MoE's platforms. While Some schools, especially private and international schools, have developed their own plans concerning emergency remote education that included a combination of synchronous and asynchronous learning opportunities, the MoE's overall strategy did not address issues of student interactions with other students, teachers, and learning resources, and most of the burden of supervising and following up with students to assess and ensure proper learning was placed on parents. Attendance reporting and assessment were suspended and students were assigned the final grades they received in the first academic semester (Saudi Arabia Ministry of Education, 2020a).

Higher education institutions were given more autonomy and flexibility in their emergency remote education planning, with some general guidelines and resources being provided by MoE. Because of the well-established IT infrastructure in Saudi higher education institutions, they were able to shift to distance learning within a day of the suspension of schools and universities. All remote teaching was delivered via Learning Management Systems (LMS), with some synchronous sessions being delivered, at the behest of faculty members, outside of these platforms (ex. Zoom, Google Meet, etc.). To ensure access to all, universities and colleges provided laptops and internet access to disadvantaged students. During the first two weeks of the transition to distance learning, efforts were mainly focused on ensuring that all course material and resources were available to students via the LMS, which was soon followed by nationwide and institution-based virtual IT and pedagogical support (i.e. webinars, drop-in hours, etc.) to enhance the quality of online instruction being delivered. Unlike the K12 level, student attendance and assessment played a major part in higher education institutions plans as they shifted to ERT. During this period, over 133 master's and doctoral thesis defences were conducted remotely in Saudi universities (Saudi Press Agency, 2020). The MoE established and communicated a framework for student assessment and grade allocation such as reducing the percentage of grades assigned to final exams to 20%, allowing students the option to switch to Pass/Fail grading scheme, and providing students with the option to drop out of courses with no penalty (Saudi Arabia Ministry of Education, 2020b).

As can be expected, initially, there was some confusion and apprehension by higher education faculty, teachers, and students, however, the MoE was quick to announce its plans and establish a general framework to guide the work of schools and higher education institutions. For the K12 sector, the MoE took charge of rolling out and implementing its emergency remote education plans in a standardized and centralized way. While higher education institutions had more space to adjust its plans based on their students' needs, IT problems related to LMS, internet connectivity and bandwidth, variation in faculty/teacher and student IT skills, and lack of coordination among faculty as it relates to adjusted course requirements and assessment created an additional burden on faculty and students (DRC, 2020).

Lessons learned

As mentioned previously, great efforts have been put in place to establish and advance online distance education platforms, tools, and resources. The digital platforms proved to have the potential of accommodating access at scale despite some of the technical problems and challenges faced by parents and students, and educational institutions were able to switch to remote teaching plans within a day of the shutdown. Further, providing asynchronous access to K12 curriculum content through different modalities and tools and providing free internet access to official MoE content helped reduce the negative impact of unequal access to learning material. With that being said, issues of internet connectivity and bandwidth, and the number of devices required to access content, whether its TV screens, laptops, tablets, and mobile phones, especially for families with multiple school aged children remained a significant challenge.

Central to the MoE's shift to emergency remote education strategy was its heavy reliance on student motivation and self-directed learning skills, as well as parents supervision and involvement in this process, with little engagement by individual schools and teachers in the process (Saudi Arabia Ministry of Education, 2020a). While this made it possible for the MoE to quickly deploy its emergency plans and ensure continuity of education for its students, it placed a great burden on students and parents who are not necessarily equipped with the self-directed learning or digital skills needed to access and navigate different MoE platforms and channels (Adam, 2020; UNESCO, 2020c). A more concerted and explicit effort by the MoE to support and guide parents during this period on how to handle the transition in support of student learning was needed (Saavedra, 2020).

Further, because of the MoE's standardized approach and curriculum-centered strategy, this experiment was not sufficient in creating a cohesive learning experience for students, or in supporting their social and emotional learning needs. Given the circumstances surrounding the lockdown and the psychological, social, and emotional impact of this pandemic, prioritizing, and maintaining the human connections between students and their teachers and peers should have received more attention from policymakers and strategists. A mixed approach of combining centralized access to curriculum content and resources along with teacher-designed learning experiences grounded in pedagogy of care could have filled this gap and supported students' social and emotional needs during these turbulent times (Bozkurt, & Sharma, 2020; Noddings, 2012).

Suggestions

For Policymakers: School closure will no doubt have a negative and long-term impact on student learning and skills development, especially for disadvantaged students and students with disabilities. Given the suspension of assessment and attendance in K12 school, The MoE must be proactive in developing remedial plans that can be put into action as soon as the lockdown is lifted and students return to schools (Burgess & Sievertsen, 2020). Policymakers should also review its current emergency remote education plan and consider developing alternative and more sophisticated emergency remote education solutions that are responsive to the varying needs and challenges of students and families. Additionally, the MoE should work in collaboration with universities and the labour market to develop action plans for students graduating and entering college next year to reduce the negative impact of school closures and improve their prospects for success and employment (Burgess & Sievertsen, 2020). A long-term suggestion for policymakers is to take this opportunity to reimagine a more inclusive and resilient educational system that actively engages schools, teachers, students, and parents in its realization; and to shift its focus from the development of additional platforms and tools to a review and evaluation of its current systems and platforms, and find solutions to the technical problems that emerged during this period and improve its IT infrastructure.

For School/Universities: Schools and universities in Saudi Arabia investing heavily in faculty and teacher professional development programs, however, the quick and sudden shift to emergency remote education has highlighted a need to invest in professional development programs that not only address curriculum specific content and pedagogy, but also target educators online competencies in addressing students' social, emotional, and psychological development and wellbeing (Selwyn, 2020). This, however, must be supported by school and university level policies (related to promotion or evaluation for instance) that enable educators to adjust instructional plans and respond uniquely and quickly to students' needs as they arise with no penalty.

For Educators: The current crisis has created a new lense through which education and its role in society is viewed. Educators should take this opportunity to reflect on their experience during this transition and

the impact it has on their students. Educators must be cognizant of the fact that the emotional and academic consequences of this pandemic will linger for a while, and to consider both the short-term and long-term implications of this experience on their students and future instructional practices. Educators need to develop appropriate plans that extend beyond academics in a way that help students make sense of this pandemic and what it means for them moving forward. It is also important for educators to think back at their teaching practices and identify ways in which these practices could be adjusted to better prepare students for future emergency remote education such as placing more emphasis on non-academic skills such as emotional intelligence and self-regulated learning skills.

For Students: My main recommendation to students is to be gentle with themselves during this period. In many ways, the shift to emergency remote education has placed students in the driving seat of their own learning, a role that they were not necessarily prepared for. Students must understand that this experience is in no way a reflection of their academic performance or abilities. With that being said, I highly suggest that students take note of this experience and use it to identify areas they struggled with the most, whether its academic, emotional, or psychological, and to reach out for help and support from teachers and peers.

Overall country-based evaluation

The impact and consequences of school closures and emergency remote education implementation have yet to crystalize and become clear, and as such it is difficult to make a judgment about the experience at this stage. The shift to emergency remote education has been a global and unprecedented experiment, and in that sense I believe that a successful emergency remote education is any emergency remote education that is followed by careful, critical, open, and honest reflection and evaluation. Schools and universities around the globe scrambled to shift to emergency remote education, and under these circumstances, mistakes and lessons learned should not only be accepted but expected. While the MoE and other educational bodies have been active in sharing quantitative data (eg. number content uploaded and login numbers), it is important that policy makers keep in mind that this is only a small part of the story. Rigorous research and evaluation studies that target local challenges that have surfaced during this period and address qualitative aspects of this experience are needed to make realistic and informative inferences that can inform educational policy and future emergency remote education implementation in Saudi Arabia. Special attention should be geared towards those students and parents who were not captured or represented by these quantitative measures due to lack of access or other factors.

South Korea

Overview

South Korea (Korea hereafter) has confirmed 10,765 infected cases with 247 deaths as of May 1, 2020. After it detected its first confirmed case of Covid-19 on January 20, 2020, it had to raise the alert level to the highest on February 23rd due to the surging spread of Covid-19, making the society in a state of panic. However, a government decision to implement widespread and rapid testing in collaboration with private sectors has made it possible to detect the novel coronavirus in six hours or less and helped the country to control the disease within a short period of time. Subsequent strategies such as applying GPS tracking rigorously, sending SNS notification of paths of those infected, applying mandatory quarantine and open Covid-19 data to the public have helped Korean people feel informed and rather safe.

With a population of 51.7M, Korea has 8,837 kindergartens (around 634,000 children), 6,064 elementary schools (over 2.7M students), 3,214 middle schools (around 1.3M students), 2,356 high schools (over 1.4M students), and 417 higher education institutions including 191 4-yr. universities, 137 2-yr colleges, 21 cyber universities, and Korea National Open University (over 3M university students and around 300,000 distance learners).

There has been no partial and total lockdown in Korea, but a mandatory 2-week quarantine for overseas travellers and people who were in the same space with the infected, social distancing and wearing a face mask have been strictly adopted. Remote work and flexible work schedule have been promoted. Around 40% of the large companies, 30% of public organizations and 24% of small and medium-sized companies were implementing work from home in April.

Reflections from the educational landscape

With a hope to open all schools in early April, the Korean Ministry of Education (MoE) postponed the opening of all schools (except kindergartens)' new term three times from early March to April 6. But as concerns persist over the Covid-19 despite the overall confinement of the disease in the country, it was decided to open school classes online from April 9 until the next decision is made in early May and directed all schools to prepare for emergency remote education.

Under the MOE suggestions, the universities also postponed the opening of their classes for two weeks, then opened their classes online for two weeks, from mid-March to the end of March, and extended again for two weeks, from early April to mid-April. Around April 20th, most universities finally decided to continue emergency remote education until the end of spring term to minimize confusion and anxiety caused by these repeated postponements and extensions. A few universities allowed faculty to have classroom teaching for laboratory and field study courses on campus.

Three types of emergency remote education have been introduced to elementary, middle, and high schools: 1) synchronous interactive classes, 2) asynchronous content-based classes, and 3) independent assignment/activity-based classes. Teachers can combine two or three different types. EBS, a Korea's public educational broadcasting system (https://global.ebs.co.kr/global/introduction/vision), and Korea Education & Research Information Service (KERIS: https://www.keris.or.kr/eng/main.do#) provide both teachers and students with various modes of digital materials across all levels and all subject matters through the “e-Learning Support System” (https://cls.edunet.net/ - in Korean only) and EBS Online Class (https://oc.ebssw.kr/ - in Korean only). A rental device (desktop, notebook or tablet) was provided and the internet connection fee was subsided for around 300,000 students who were in need. Over 4M students have been taking emergency remote classes since April 9 until the time of this writing which is April 28, 2020.

In most universities, an LMS combined with one or more synchronous technologies (e.g., Zoom, Google Meet, Webex, etc.) has been introduced for emergency remote education. Since the early 2000s, a majority of the universities and colleges in Korea have been using an LMS and other digital tools, and have had experiences in developing and disseminating digital learning resources via their center for teaching and learning or e-learning support center. Three most popular modes are: (1) synchronous interactive courses combined with a school LMS, (2) asynchronous pre-recorded video lectures combined with asynchronous forum activities, (3) independent readings and assignments combined with faculty feedback. For emergency remote education, KERIS offered an LMS or a server space for those universities in need and each university provided a rental device and/or financial support for their students in need.

Teachers even with high competency in ICT skills were panicked and expressed a lack of confidence in interactive remote teaching at the beginning. But as they were provided with high-quality digital materials from EBS and KERIS, they did not have to worry about content development so much. On the other hand, university faculty who had to create digitized content and materials from the scratch with relatively low level of ICT skills felt overwhelmed with content development and unconfident and nervous with technology use, especially at the preparation stage. As they become more comfortable with content development and technology use, many of them appear to be enjoying closer interactions with students in online classes and flexibility in time and space.

Students show split reactions to emergency remote education. Some say that they have improved concentration and more opportunities to present their ideas while others complain about the low-quality of video or synchronous lectures and reduced concentration. A few students complain about teachers who use open educational resources instead of making their own lectures as they consider the use of those existing OER is an indication of lack of zeal on the teacher's side. In such cases, it might be that no proper OER adaptation was made to fit for a specific course or too much OER use was attempted without considering their relevance to the course.

Lessons learned

In preparation for a large-scale emergency remote education scheme, a system view needs to be employed to identify all aspects and factors that need to be carefully planned from the outset. Installing and upgrading hardware technology is only one aspect of successful preparation. There has to be a comprehensive framework for the change which considers offering faculty development for technology and online pedagogy skills, helping students and parents prepare for remote learning, confidence

building of all members involved, establishing troubleshooting and support systems, considering marginalized groups of students, and more.

Suggestions

Suggestions for policymakers: Important decisions such as whether and when to introduce emergency remote education should be made earlier than later so as to allow teachers, students and parents more time to prepare for the emergency and reduce their anxiety level.

Suggestions for schools/universities: Schools and universities must set up a system to provide initial teacher/faculty training for emergency remote education and various combinations of support services including manuals, workshops, webinars, peer supports, SNS groups, best practice sharing sessions, etc. They also need to provide clear guidelines and support to students and parents to help them study online effectively and with confidence.

Suggestions for educators: Teachers and faculty members should consider not only content creation and delivery but also student-student and student-teacher interactions to promote active learning. They also need to develop basic troubleshooting skills that might be needed during remote teaching.

Suggestions for learners/students: For students, setting up a routine and help-seeking seem to be most important. Students are strongly encouraged to develop a routine schedule to study various materials provided by their teachers and at the same time engage in learning activities such as discussions, Q&A, group work, etc. to maximize their learning effectiveness. In addition, they need to seek help from teachers/faculty members when they have difficulties in learning.

Overall country-based evaluation

Overall, Korea has shown its readiness to introduce emergency remote education at the national and institutional level in terms of infrastructure, general instructional design capacity for online learning and technology acceptance. But despite the overall e-learning readiness of the country, it has faced several problems due to lack of a systems view at the government and institutional level. While the coronavirus situation cannot be predicted with certainty, it is important to provide educators, learners and parents with a clear path to continuing their teaching and learning at least during this spring term. Unfortunately, schoolteachers, students and parents are still waiting for a MOE decision on whether they will continue to have emergency remote education or switch to normal classroom teaching in early May.

It is too early to evaluate Korea's emergency remote education regarding openness in education at this stage. However, K-MOOC (a Korean MOOC established in 2015 as an open online service, http://www.kmooc.kr/about) and some MOOCs in Coursera and edX have been adopted in several universities for credit transfer. For example, Pohang University of Science and Technology has provided 57 MOOCs in such areas as AI, Big data analysis, IoT, Linear Algebra, and more to other universities. To reduce the burden of digital content development of individual faculty members, online course sharing among partner universities has been promoted.

The Philippines

Overview

The Philippines, with an estimated population of 109M (World Population Review, 2020), recorded its first Covid-19 case in the country on January 30, 2020. Since then, there were no recorded cases of infection until March 6, 2020, where a married couple with no travel history abroad became the first two cases of local transmission. The impact of this pandemic surprised not only the economic, health, and tourism industry, but it also affected the education sector. To offer a glimpse, it was March 9, 2020, when the Philippine government decided to suspend classes at all levels in the National Capital Region in response to the continuous increase of local case transmissions. In the same week, the government widened the suspension by declaring the entire island of Luzon under enhanced community quarantine or lockdown until April 14, then extended for another two weeks.

Currently, there are almost 64,000 schools nationwide catering to an estimated 2.9M kindergarten, 13.8M elementary, 8.1M junior high school, 2.8M senior high school, and 3.2M college students. The call for class suspension made a sudden impact for the academic calendar (June-March) to immediately

finish the school year. Whereas schools using the new academic calendar (August-May) were advised to continue the learning engagement through emergency remote education.

Essentially, the high-risk areas, such as the country's epicenter of the pandemic – the Metro Manila, were put under enhanced community quarantine to contain the spread of the disease; while a General Community Quarantine or modified lockdown was declared to areas with low to moderate risk of Covid-19 transmission. However, regardless of whether the area is under enhanced community quarantine or general community quarantine, the new normal calls for Filipinos to wear a mask in public places, practice social distancing and proper hygiene, shift to work from home scheme and maximize e-commerce services.

Reflections from the educational landscape

The Philippine educational landscape consists of two prong academic calendars, which is the June-March (old academic calendar) and the August-May (new academic calendar). This has added a level of complexity to academic debates especially as it relates to which calendar to use when considering resumption of schooling. Since there is still no available cure or vaccine for Covid-19, the voices of school stakeholders that are in favour of the school opening and realign with the new academic school calendar won out. Hence, the Department of Education (DepEd) and Commission on Higher Education (CHEd) decided to move the school opening to August 2020 so that educational institutions can also have time to prepare for emergency remote education. Although there were no definite guidelines released as of May 3, 2020, both education agencies had a premature statement that face-to-face interaction might not be possible even under the new academic calendar because they wanted to assure the safety and security of the students amidst this global health threat.

In K12 schools specifically, the DepEd is finalizing the Learning Continuity Plan that seeks to ensure that learning will continue even in this time of the pandemic crisis. One of its measures will be geared towards emergency remote education. For instance, the DepEd had recently launched the "DepEd Commons" (https://commons.deped.gov.ph/), an online learning platform where students can freely access educational learning resources and materials anytime, anywhere. However, some teachers had raised concerns about the capability of their technical skills in teaching remotely. At the same time, some parents were worried about the effectiveness of emergency remote education since they believed that essential skills, like writing, need to be taught in a face to face session. Additionally, the discussions on learners living in geographically disadvantaged areas with poor to no reliable internet coverage and connectivity also raised questions whether education must be continued. Thus, the agency considered the idea of collaborating with the state-run television network as well as to regional television networks for the use of TV and radio-based education. Likewise, the inclusion of the use of correspondence or modular instruction was put in place to cater the learners in far-flung areas as part of the new normal in basic education.

At the university level, despite massive calls for #EndSemesterNow, #MassPromotionNow, and #NoStudentLeftBehind, the majority of the private and state colleges and universities under the new academic calendar insisted that education must continue despite these trying times. Although some schools decided on mass promotion in consonance with a compassionate approach in education, however, most higher education institutions in the country were eager to push through the remaining semester for learning engagement. As such, the CHEd authorized higher education institutions to resort to using emergency remote education and determine its extent for the teaching and learning process. At first, synchronous instructional delivery was a trend and embraced by most universities (e.g., zoom, google classroom). However, many students and parents, and some teachers raised their clamors that education in this time of Covid-19 was only advantageous to those who have reliable internet connectivity and equipped with a digital device. As a result, most higher education institutions in the country shifted to asynchronous delivery and offline learning activities to accommodate and to respond to social inequality in access. Moreover, the CHEd proposed the need to not simply resort to synchronous instructional delivery but a combination of different approaches, such as asynchronous and offline modular instruction, to augment stakeholders' concern on the digital divide in access and promote inclusivity in the new normal in higher education context.

To sum it up, the question lies whether the teachers, students, and stakeholders were prepared in this new normal in education, such as teachers' teaching remotely, learners' learning in emergency remote education, parent's role in facilitating child's learning at home, and government's role in ensuring learning opportunities and equal access for all.

Lessons learned

In the Philippines, this pandemic crisis caused a massive impact on the education system. The abrupt shift to emergency remote education showed a socio-economic disparity between the advantaged and the disadvantaged students. Although there is a national expectation that students are well-prepared because of the disruptive age in education, there is also no doubt that not all Filipino students have access to internet connection and digital devices to use for learning compliance. In the 2018 report by the Philippine Institute for Development Studies, it was revealed that the majority of the population of around 58% belong to the low-income class having a monthly indicative income between USD 190 to USD 380 (Albert, Santos, & Vizmanos, 2018). This reflects the purchasing capability of most students to afford to have a technological device, like a laptop, to use for educational purposes in these trying times.

Furthermore, the duopoly of telecommunications and poor network infrastructures (Roberts & Hernandez, 2019) have resulted in limited to no internet connectivity. Since computer cafés were closed due to ECQ, some students might be put in a disadvantaged learning situation in complying with synchronous learning activities. Additionally, while the majority of Filipino teachers were considered to be products of face to face schools and their teaching practice was concentrated in the four walls of the physical classroom, it is no wonder that misconceptions in emergency remote education were on the rise, such as their technical skills in reintegrating pedagogy and knowledge on the use of different assessment approaches in the emergency remote environment. Hence, these possess threats on part of the students' learning progression because teachers were not well-equipped with necessary technical knowledge and skills with regard to emergency remote education. Lastly, there was a need for teachers to show compassion and care for students because no one is inevitable during the pandemic.

Suggestions

For policymakers, the need to craft concrete development plans on telecommunication infrastructures are necessary to address the issues on a reliable source of internet connectivity in the country. The post-Covid-19 scenario would highly resort to the use of a blended learning environment. Thus, the curriculum should be revisited and redesigned by aligning to a new normal in education. The policymakers, likewise, should consider reviewing the need to lower or reduce taxes on technological devices so low-income class families can have the purchasing capability to buy a laptop or a computer in support of a shift to a remote learning environment.

More importantly, schools/universities will play a major role in making education meaningful and accessible for everyone. The need to invest in teachers' continuing education would reroute in ensuring that they are at par in the ever-changing landscape of educational technology. Training such as emergency remote education, virtual classroom management, and assessment and evaluation in online teaching will be an essential component in well-equipping and staying them on learning new trends in education, especially in delivering teaching in the time of pandemic or disaster.

For educators, this might be a great time to learn online teaching and educational technology concepts through open educational resources and free webinar offerings. Although it would not be an overnight process, surely it would give a glimpse needed in ensuring quality emergency remote education. Teaching with compassion and care must also exhibit to lessen the transactional gap between teachers and students.

Lastly, students having difficulty accessing online learning materials should not be afraid to speak and to ask for the assistance of teachers for alternative learning tasks. Since the new normal in education is making its way, it would be necessary for students to become flexible and develop a sense of self-discipline and responsibility in working online/offline learning activities. Likewise, the parents have a major role to play in assisting and guiding their child's learning to ensure quality learning progression.

Overall country-based evaluation

In general, Philippine's education system was hard hit by this pandemic crisis. The challenges of lack of access to internet connectivity, poor network infrastructures, underinvestment on faculty training in online/blended learning, and high cost of digital devices were one of the impending problems that hindered effective delivery of emergency remote education. The social inequality and the digital divide had also been observable in these trying times. Primarily, those students with internet access took advantage of learning remotely, while disadvantaged students need to find an alternative way of

completing the learning tasks by voicing out their challenging experiences and problems to make learning accessible for all.

Further, the postponement of schools/universities opening under the old academic calendar was a good testament in ensuring the safety of Filipino learners. Although there was no assurance of having a cure or vaccine by August or September 2020, the decision of DepEd and CHEd in rethinking and redesigning teaching and learning process through the use of emergency remote education and other modes of alternative delivery amidst the threat of Covid-19 provided opportunities for lessening the gap between teachers and students and make learning a socially inclusive. To conclude, as a developing nation, we see education as an important element to escape the poverty trap, hence, this pandemic crisis will never be a hindrance to further continued education and to make innovative ways in reaching out to learners across geographical locations through community-building and sharing. In Filipino, we call it *Bayanihan*.

Africa

Algeria

Overview

Algeria is the 10th largest country in the world and the largest by area in Africa. With a population of approximately 44M, it is the 8th most populous country in Africa. It has one of the largest economies on the continent, based largely on energy exports. Algeria has the 16th largest oil reserves and the 9th largest reserves of natural gas in the world (World Population Review, 2020; IEA, 2020).

Algeria has about 1.7M students, 60% are girls (Ait Allouache, 2020; Algérie1, 2018). Public education is free in all 107 universities and institutes. Approximately 9.3M learners are at public primary and high schools. The Algerian education system ensures access to education is free. The Algerian Constitution guarantees the right to education for all. Algeria has no private universities.

On February 25, 2020, the Algerian Minister of Health, announced the first case of Covid-19, the patient was an Italian who arrived in Algeria on February 17 (BBC News,2020). In response to the exceptional circumstances stemming from the coronavirus pandemic, subsequent measures were taken on March 12, 2020. The government introduced containment measures, closed all schools, banned public gatherings, and put in place other social distancing measures. Besides, the Scientific Committee for Monitoring the Evolution of Coronavirus in Algeria was established. The task of this commission was to follow the evolution of the pandemic and to inform public opinion daily and regularly (Maghreb, 2020).

The Algerian government imposed a curfew on March 23, 2020, from 7 p.m. till 7 a.m., limiting access to groceries, butcher shops and pharmacies. The number of cases recorded in Algeria until March 25, 2020, remains low (302 cases) and insignificant, compared to the spread of the coronavirus worldwide (Litamine, 2020).

The pandemic followed an exponential curve, on April 5, 2020, the country was extended restrictions with a 14-day partial lockdown with curfews between 3 pm to 7 a.m. On the start of the holy month of Ramadan, the nation started its third curfew extension of 14 days between 5 p.m. till 7 a.m. Algeria confirmed 5369 infected cases with 488 deaths as of May 8, 2020 (Open Stats Coronavirus, 2020)

Reflections from the educational landscape

On March 12, 2020, Algerian President took the decision that the spring break, scheduled for March 19, would be brought forward by one week and closed all schools and educational establishments till April 5, 2020.

The Algerian education system is divided into several levels: preparatory, basic (primary, and intermediate), secondary, vocational and finally higher education. For the K12 sector, the MoE made available educational YouTube channels hosted on the internet on April 5, 2020. This allowed all students in the K12 system to access education for the third quarter of the academic year 2019-2020, by following their courses via the YouTube video platform (Redouane, 2020). Indeed, the MoE explained that for the first time in Algeria, due to the Coronavirus, tutoring was through video platforms for the benefit of learners.

The National Office for Distance learning and Training (http://www.onefd.edu.dz/), in collaboration with the MoE; has also made available a list of websites and electronic platforms suitable for K12 students to access tutoring courses on the Internet.

With a total of 27,351 public primary and secondary schools and 107 universities in Algeria (Redacteur, 2018), the online pedagogical practices are still undeveloped despite the country's effort to increase investment in educational technology. However, the majority of Algerian public universities have already launched e-learning platforms and have enrolled their students to the Moodle learning management system to interact and to connect with their lecturers.

Lessons learned

Over the past decade, the number of Internet users in Algeria has greatly increased due to the increase of internet speeds and lowering of tariffs, as well as the introduction of new telecommunication technologies such as 4G, 4G LTE home internet and by installing optical fiber cables and multi-service access nodes (MSANs) all across the country. This can be attributed to the democratization of the mobile internet and the accessibility of smartphones (Alleche, 2019; Mehenni, 2020).

Since the Algerian government announced the suspension of learning in all universities on March 12, 2020, there was an immediate shift from face to face to remote teaching and learning using technology and the internet. For Masters and PhD students, the National Online Documentation System (https://www.sndl.cerist.dz/) and Algerian Scientific Journal Platform (https://www.asjp.cerist.dz/) allow access to national and international electronic documentation, very rich and varied, covering all fields of education and scientific research.

Indeed, the Ministry of Higher Education and Scientific Research (MHESR) and MoE decided to grant free access to platforms (http://elearning-mesrs.cerist.dz/) and (http://soutien-scolaire.onefd.edu.dz/). The entry into those platforms was concluded after the signing of a joint agreement between the ministry concerned and Internet service providers; in particular telephone operators, in order to allow students to consult the websites providing online courses, during the lockdown order, without having to recharge their Internet credit. This helped to moderate the constraints encountered by certain students who could not afford to pay an Internet subscription to be able to follow the courses online. Access to educational platforms were made available to students for free.

On May 10, 2020, The Algerian government in collaboration with the leaders of both primary and secondary schools have taken important decisions such as; the Algerian Certificate of Primary Education was cancelled, the Certificate of Secondary Education exams will be postponed to September 2020 (Algérie Press Service, 2020).

Masters and PhD students who completed their research work were allowed to return to their universities on May 11, 2020, in order to organize their oral defence (Oulagha, 2020). These thesis defences took place only in the presence of students or doctoral students, the president of the jury and the supervisor. They were placed in closed rooms where access was prohibited to other people. Preventive measures against the pandemic and respect for social distancing were also required. This decision was part of the measures deployed by the government aimed at stemming the Coronavirus epidemic in Algeria.

Suggestions

The coronavirus surprised all of us. The pandemic is not over yet; no one yet knows the consequences, both political and economic. A lot of ink will be spilt on the Covid-19 crisis both by professionals including doctoral students in medicine, biology, economics, sociology, psychology, psychiatry, criminology, etc. Many governments have declared that they are at war to get the attention of their people, but worse, this enemy is invisible, and no country was prepared for this pandemic.

Policymakers need to be adequately prepared and equipped and show the desire to move to a new way of teaching and learning in time invisibles of social distancing. Appropriate technology should be promoted that allows remote working and online networking. For that purpose, digital infrastructure and online connectivity need to be improved and extended. To achieve such a reorientation, Algerian government needs to mobilize innovations and investments and integrate them into new business models with a strong focus on supporting young people. Promoting OERs, technology exchange and investment promotion are important policy measures that can reinforce this process. Educators could

use this opportunity to promote, adapt and use OERs in a new direction and spend more time producing quality resources for the Algerian context.

Overall country based evaluation

The principles governing the Algerian education system are defined by the Algerian constitution: It is stipulated in the Algerian constitution, notably its article 53, that education is an inalienable right. It is, moreover, compulsory, free for all children of school age up to the age of 16 years old. Education is one of the major prerogatives assigned to the State, which allocates it a substantial budgetary envelope.
All 107 universities are public and totally free, the registration fees at the University, around $2 per year, are among the lowest in the world. However, the major challenge facing students and their teachers when the Covid-19 pandemic struck Algeria were the slow internet connections and a lack of ICT infrastructure for large-scale emergency remote education. After the Covid-19 pandemic, the government and educational staff must make rigorous evaluation studies in order to better prepare students for future and more sophisticated learning solutions in Algeria.

Egypt

Overview

The total population in Egypt is approximately 102M in 2020 with 60% of the population under 30 (World Population Review, 2020). Education sector consists of public and private education at K12 and university level. The number of students in K12 = 21.1M students and number in university = 2.8M (Mohamed, Skinner, & Trines, 2019) in 24 public and 26 private universities (Bekele, 2019). Public education is free in K12 and almost free for the university level.

Recent policies have ensured integration of information and communication technology (ICT) at universities (Bekele, 2019; Bali & Aboulmagd, in press), but the wider context is 44% internet penetration in Egypt (MCIT, 2018), and mobile penetration that exceeds 100% (MCIT, 2018).

The Egyptian government announced the closure of schools and universities on March 14, 2020, due to the coronavirus pandemic, originally stating a start date of closure March 15, 2020, for two weeks. At the time, all cases had come from outside Egypt and were being isolated. The closure of educational institutions was later extended until the end of the school year. Before this announcement, there had been rumours and some concerns from parents, especially after one particular private school was temporarily shut because of a student whose father had tested positive for Covid-19. There were concerns over how education and assessment would continue, which were mostly clarified and relieved for K12, but with remaining uncertainty for certificate years. University policy remains unclear.

Aside from schools, over time, the country imposed a curfew at first from 7 p.m. till 6 a.m., including shops closing at 5 p.m. and closure of certain places (shops, malls, restaurants apart from groceries and pharmacies) on weekends. With the advent of the holy month of Ramadan, shops were allowed to open on weekends and curfew was extended to be 9 p.m. till 6 a.m. Government institutions and banks were allowed to work with fewer employees and bank opening and closing hours were reduced. Social distancing, and wearing personal masks was encouraged but not necessarily followed nor enforced (curfew is enforced in areas accessible to police/military). The population was split between those who take it seriously and those who do not.

Soon after closure of schools, Egypt announced closure of airports after a few days and gave time for Egyptian nationals abroad temporarily to return. Since then, there have been a few exceptional flights in and out, and anyone entering Egypt enters through a particular port where they are quarantined for two weeks. Initially, people entering Egypt were advised to self-quarantine at home.

Reflections from the educational landscape

For K12, Minister of Education announced schools would halt adding new material after March 15, 2020, and took the following measures:

- Transition years would not have any exams; news on important certificate years (especially last year of high school called thanaweya Amma) is pending.
- Instead of exams, transition years students would conduct a research project appropriate to their age and integrating knowledge across all subjects. Students would have choices in subject matter and could conduct research from school textbooks, internet and subscription-based

resources that are freely available via the Egyptian Knowledge Bank (EKB) website. If someone could not do the project on their own or didn't have internet access, they could do the project upon the reopening of schools whenever that may be.
- TV was used to conduct educational programming, and again, EKB has resources for students of all ages.

Delivery Modes for K12 included
- TV programming (synchronous but not interactive) and EKB resources (asynchronous, not interactive) and schools were encouraged to use Edmodo to communicate with students. Most of this technology is accessible on mobile devices.
- Students in private schools used various Learning Management Systems such as Google Classroom and various synchronous tools such as Zoom and Google Meet. Most of this technology is accessible on mobile devices.

For universities, there was initially no national guidance on how to move forward for public institutions or private institutions, but some national guidelines were announced after mid-April, including guidance for alternative assessments, and Pass/Fail grades for the second term which was taught online, and failed projects would be given a second chance to improve.

The well-resourced private non-profit American University in Cairo (AUC) announced closure a couple of days before the government announced the closure of schools and universities nationwide. Training for professors for "contingency" had started before this announcement and continued for one more week. With the move to online learning, students will be given the choice to convert letter grades to Credit/Fail after they see their grades.

Delivery modes for higher education:
- For public universities, professors created instructional videos or audio lectures to share with students, in some cases to the university's public page for educational materials or to YouTube. In some faculties, professors and teaching assistants communicated with students via free Google Classroom and freemium version of Edmodo or free Acadox LMS. Some institutions started to use Microsoft Teams to interact with students.
- Some designed projects and assignments and created rubrics, some conducted online quizzes and take-home exams online. Some used free Zoom or Google Meet for live sessions. In person exams were reduced except for final year students, for whom they were postponed until circumstances would allow.
- Some faculties were very careful about equity, recognizing that not all learners had access to personal devices or high-speed internet. Therefore, some faculties uploaded material on Facebook as most people could access it from a phone (almost everyone in Egypt has access to a mobile phone).
- Students and professors also have access to EKB. No system was established across all public universities or for all faculties within public universities, nor were there instructions for private universities.
- For the American University in Cairo, one of the oldest private universities in Egypt and the only non-profit, the Blackboard LMS was used (this was previously in use but for web-enhanced or blended learning), with synchronous meetings (Zoom, Google Meet or Blackboard Collaborate Ultra) optional, but asynchronous learning encouraged. Use of Panopto for lecture capture, although some professors chose to record on Zoom. Encouragement to use alternative assessment methods but the availability of an online proctoring tool for exams where necessary.
- Other private institutions used Learning Management Systems such as Moodle, uploaded lectures, and some conducted Zoom meetings with students
- Some private universities affiliated with international counterparts followed their counterpart's approach, Learning Management System, etc.

Understandably, reactions from instructors varied. Some who were more digitally literate took it in stride and supported others, while some others panicked. Many professors across the board were caring about

students' wellbeing, trying to find ways to support students beyond the curriculum, and find ways to address their anxieties. Some at AUC modified their curriculum slightly to integrate assignments on Covid-19 related topics. Some tried to ensure workload did not overwhelm students. AUC senate voted to allow students to choose Credit/Fail grades to relieve the anxiety of students on scholarships or for whom a poor grade could be detrimental. AUC also created a webpage on learning online and one on wellbeing in these times. As previously noted, some faculties in public institutions were careful to make material accessible on Facebook and ensure it works on mobile, to account for some students' lack of access to computers. Others were more focused on ensuring rigor online.

Some institutions held training sessions for small groups of professors who were then asked to help others. Some focused on equity issues and people's access to devices and internet infrastructure. The American University in Cairo held in-person contingency training sessions before the lockdown was announced or started, and a few sessions at the beginning of national closure of schools/universities and continued with online webinars and one-on-one pedagogical consultations and technical support. Guidelines and documentation published here https://www.aucegypt.edu/online-instruction

From the learners' side, there was initial panic and concern from learners and parents, across income levels. The announcements related to cancelling exams for schools and public universities helped calm panic, but the alternative assessment methods are unfamiliar to most teachers and students, but leniency in grading is expected. The use of Pass/Fail in public universities and the option of Credit/Fail at AUC has reduced anxiety for students.

The experience of pivoting online due to Covid-19 raised the following points for consideration beyond this particular crisis, which require action on the part of government, ministries, school leadership and teachers themselves.

Equity concerns persist: Households and individuals have unequal access to devices and good internet, according to socioeconomic status and geographic location, and this influences capacity to learn online. Low-income households with multiple children would have these challenges exacerbated. Even though for K12 the government offered the option of students doing projects upon their return to school rather than online, some public school teachers offered to do the projects on behalf of students for a fee (this is a continuation of Egypt's chronic problem of private tutoring, and an expected reaction to the economic impact of the crisis). If the government wishes to have more online learning options in future, infrastructure should be distributed more equitably. A previous experience with distributing tablets to secondary school students was a pilot for this.

For K12, the move away from exams was positive. However, in younger ages, neither students nor teachers had had the education to prepare them for this new method of assessment versus the memorization they had been used to. However, the option to wait until school reopened is a possibility for those with the least access, i.e. those without internet connectivity or, or who are too young to work alone or whose parents cannot support them in finishing their projects.

Across the board, neither students nor teachers had sufficient digital skills and literacies to prepare for this transition, except for some pockets (e.g. American University in Cairo which had the infrastructure and conducted training for professors, and already had some professors with experience in blended and web-enhanced learning). The response in many higher education institutions was swift, but not well thought out. A more organized effort to raise the levels of digital literacies of teachers and professors, including how to support students on the socioemotional level via online communication, is needed.

Previous good practices in online education were difficult to apply. This is partly because of the unique situation of a pandemic where managing the pandemic involves promoting physical/social distancing, which means learners and teachers have unmet socioemotional needs as well as increased cognitive load from the anxiety induced by the situation. This has meant for example that video-based synchronous meetings have been adopted where possible, despite this not being how online courses are usually designed. Learners want it because they need the social connection, teachers prefer it because it feels like less load of prerecording. However, this created a load on households with multiple learners or parents working at home and limited access to devices and internet infrastructure.

Suggestions

Suggestions for policymakers: Policymakers need to focus on providing equitable access to devices and internet for teachers and students; keeping offline alternatives such as TV for K12 and possibly DVDs or audio files for some university faculties. Continue with EKB but also fund Open Educational Resources (see below).

Suggestions for schools/universities: Make use of Open Educational Resources and fund creation of new ones based on local teaching content/practices in order to free up teachers/professors to interact with learners rather than spend time creating content similar to other institutions within Egypt. Invest in enhancing digital literacies of educators and their abilities to provide interactive education online that meets learners' socioemotional needs. Consider professional development on alternative assessments and consider how these might become mainstream beyond this crisis. Support teachers to differentiate instruction (e.g. Universal Design for Learning framework) and prepare for "catch up time" upon reopening of schools and universities, whenever that may be.

Suggestions for educators: Invest in developing their own digital literacies and find ways to connect to learners on a human level. Consider ways to differentiate instruction online so that no child is excluded due to connectivity, learning difficulties or mental health difficulties. Focus on key learning outcomes rather than doing everything.

Suggestions for learners/students: Focus on their own wellbeing, work when able, reach out to teachers when help is needed. Learn life skills at home, rather than focus on just academics.

Overall country-based evaluation

It is difficult to evaluate the overall impact of the emergency remote online teaching in Egypt - it will require longitudinal and contextualized studies because experiences varied so widely, and factors influencing success of the experience varied: access to infrastructure and devices, digital literacies of teachers and students, emotional and economic impact of the crisis (e.g. private tutoring income for teachers).

In terms of teaching with technology, there was partial readiness, inequity, and no coherent strategy across the nation for universities. Although there was a unified strategy with alternatives in K12, it was one requiring a huge paradigm shift for teachers and learners alike. Teachers and professors are to be applauded for trying to keep teaching in these circumstances most of them were not well equipped to deal with.

There is an opportunity to develop digital literacies and more equitable systems, including potentially making better use of Open Educational Resources and funding localized Open Educational Resources beyond what is on the EKB in order to facilitate online learning where needed and allow teachers to focus their energies on learner communication, interaction and feedback.

Kenya

Overview

After discovering its first case of Covid-19 on March 12, 2020, Kenya (in East Africa) confirmed 435 infected cases with 21 deaths and 150 recoveries as of May 2, 2020. This confirmation left the society in fear, confusion and panic that was evident in the social media and people's reactions to the government's response measures. However, the Government of Kenya, through the Ministry of Health and its rapid response networks, assured Kenyans that its strengthening measures to ensure no further transmission of the disease in the country. Subsequent measures such as the constitution of the National Emergency Response Committee on Coronavirus preparedness and response, creating a Covid-19 awareness toll line, contacts tracking and quarantining, application of mandatory quarantining and open Coronavirus information to the public through the media has provided Kenyans with relevant information and has shown a sign of solidarity and grace.

With a population of 47.5M, Kenya has 7,000 primary schools with about 13M learners at public and private primary schools; 3,000 secondary schools with a total enrollment of 620,000 students. The secondary schools are categorized as public, private or harambe. It also has a total of 48 universities in

which 22 are public and 26 private. Kenya still does not have a functional National Open University, but different universities use a blended mode of learning to enhance online education.

Kenya was locked down with curfew between 7 p.m. to 5 a.m. by June 2020. There was also a mandatory 14-day quarantine for overseas travellers and those who come into contact with the infected. There was also adoption of social distancing, wearing masks in public spaces, working from home, working in shifts, as well as compulsory unpaid leaves by some privately owned companies and organizations. Mass testing was introduced with the focus on densely populated regions with already confirmed cases of Covid-19.

Educational Landscape Reflections

Three days after the confirmed case of Covid-19, the Kenyan government announced the suspension of learning in all schools, colleges and universities on March 15, 2020. It was one of the major measures imposed to contain the virus as schools are considered high-risk areas due to the populations of learners held and who come from different backgrounds, and potentially remains one of the last to be lifted.

The education ministry was working with county governments in converting boarding schools into health facilities and isolation centers. At the time of closure, leaders of learning institutions were hopeful that it would not take long for reopening schools and higher learning institutions.

As a result of such adjustments, the leadership of both primary and secondary schools was calling for the postponement of the Kenya Certificate of Primary Education and Kenya Certificate of Secondary Education exams, which was citing anxiety in schools. The preparation for exams was further complicated by the fact that the tests were printed in the UK, which was a country under lockdown. The government ordered the closure of schools and cancellation of GCSE and A-level examinations on March 18, 2020. The Kenya National Examinations Council timetable had KCPE tests starting on October 27 while the KCSE theoretical exams were to start on November 2. The schools' co-curricular activities were also disrupted, with the private schools feeling the pinch most since their operations mainly depend on school fees payments. Some of them sent their teachers home and declared it as 'temporary layoff' owing to the inactivity at schools.

The closure of all learning institutions led to an immediate shift from face to face teaching and learning to emergency remote learning using technology and the internet. Furthermore, learning was based on sending reading materials and assignments to learners via email or posting such materials to learning management systems like Moodle or Google Classroom and other learning platforms. This mode of online teaching does not take into consideration the participant's interaction and instructor feedback (Selvam, 2020). It is important to note that such learning is at best based on summative assessment ignoring formative assessment which helps learners get continuous feedback hence improving the quality of learning. Feedback and frequent interaction with learners are considered to be important success factors in online courses (Baran, Correia, & Thompson, 2013).

The underlying questions here are: how prepared are learning institutions for online learning amidst abrupt change to online learning brought about by Covid-19? Are the instructors/teachers and learners ready for online learning? Do they have sufficient devices for learning? Do learners and instructors have the skills to embrace online learning? Where do instructors and learners access internet connection? Is internet connectivity adequate to support online learning?

Lessons learned

A shift from face to face learning to emergency online learning was the only option for learning engagement for Kenya. However, the unexpected closure has presented challenges for parents, learners, educators, and authorities as they grapple with the interrupted learning and changes in their social lives. Many parents were unprepared for distance learning and homeschooling and are now struggling to help their children with schoolwork if institutions provide it. Only upscale private schools provide online learning. Some use Microsoft Teams; but this has left thousands of learners in public schools at a very disadvantaged state. Fear is rising that the prolonged closure might have as a consequence an increase in dropout rates due to early pregnancies, child labour, gender-based violence especially among vulnerable communities like those living in slums, rural areas, pastoral and nomadic communities.

While the Kenya Institute of Curriculum Development has stepped up its virtual learning output through radio and TV lessons and the Kenya Education Cloud, unequal access to digital learning tools leaves out thousands of children as well. Not all homes have access to these digital platforms and even if they do so, the conditions for use leave out some learners as parents prefer other options like watching or listening to news or sports, rather than learning lessons.

Even though homeschooling is encouraged by the government, absence from school has also deprived thousands of Kenyan children who benefit from school feeding programs of this boost in their nutrition, this is especially the case for children who live in slums and whose families form part of the rural poor. Parents who had not budgeted to feed the children during this period have to dig deeper into their pockets to adjust to the situation.

Universities and colleges were also declared closed under the same directives. Most of the universities have now opted for emergency online learning in which all lecturers are expected to use learning management systems like Moodle or Google Classroom to engage with the learners. This virtual learning mode has left out thousands of learners especially those from disadvantaged communities, where power shortages, poor connectivity and lack of digital devices are prevalent. Educators are facing a number of challenges with regards to their digital proficiency and internet accessibility.

Suggestions

Information and Communication technology have become the new norm for life in all spheres, be it health care, economic, social, sports or education. It is time for our education systems, especially in Africa to fully embrace ICT and open education in their teaching and learning from primary up to university levels. Thus, the investment of resources should not just target a stop gap measure, but rather focus on a systemic change in education (Selvam, 2020).

Self-directed learning is now the new norm in Kenya. Covid-19 has not only challenged learners and researchers but has also provided opportunities for self-learning (Selvam, 2020). Educators must engage parents and Learner's guardians to facilitate a smooth transition from face to face learning to homeschooling using technology and the internet.

With these changes, Selvam (2020) emphasizes that education has to move from mere learning to learning to know; from imparting information to information literacy; from being content-centered to be methodology focused.

Learning institutions should lobby for subsidized internet bundles from service providers and policymakers should reduce tax levies to such in order to offer affordable and reliable internet connections for educators and learners off campus.

Capacity building is paramount. Educational institutions should fill the gaps in digital literacy, information literacy, online education and open licensing for all educators at all levels. This will boost confidence and motivate educators and learners.

Kenya's government in collaboration with UNESCO should develop appropriate policy frameworks for the education sector to help bridge the gap between "technologically proficient and technologically deficient".

In Kenya, it is very clear that many traditional jobs will become obsolete. Most employers in big and medium companies are now demanding intellectual agility from graduates as machines become more practical. This calls for a skill-based curriculum in colleges and universities which is currently lacking and the institutions should, therefore, take advantage of Covid-19 pandemic to scale up their curriculum to suit such needs.

Overall country-based evaluation

As a scholar in open education practices and a champion in online learning and research, the author of this case feels that Covid-19 has thrust us forcefully, as it were, into how education ought to be carried out in the 21st century, particularly for most Sub-Saharan African countries. The institutions that had or were in the process of adapting their systems to e-learning were seen coping effectively with the present Covid19 crisis, where some that were not were caught in the mix.

Change is indeed a process, and technology and internet usage cannot holistically replace face to face teaching and learning methodology especially in most of the countries in Sub-Saharan Africa. Online learning is a must, especially when responding to critical global crises like covid19. Institutions of learning in collaboration with other stakeholders like UNESCO should do more in order to effectively minimize the gap between technological enabled and technological disabled and provide support to educators and learners during such hard times. Educators should not just 'do no harm', but 'remove the harm' by creating unique and effective learning experiences where success is contingent on persistence.

All in all, the actions of the Kenyan government, most specifically the health and education sectors as well as community reactions during this pandemic deserve praise and constant support to ensure a smooth transition between face to face traditional mode to a more blended mode of learning engagement.

Ghana

Overview

After recording its first two Covid-19 cases on March 12, 2020, Ghana has so far confirmed a total of 3,091 cases, 303 recoveries as of May 7, 2020. Airports, ports and all entry points were still open until March 17, 2020, when the government imposed a travel ban on countries that had recorded more than 200 cases in the previous 14 days. All borders were later closed on March 22 with a mandatory self-quarantine policy on all travellers who had arrived in the country before midnight that day.

Since then, coronavirus has destabilized every aspect of our lives including education. The government called on the general public to help limit the spread of the virus by observing all the necessary safety protocols; like regular handwashing with soap under running water, use of alcohol-based hand sanitizers and the practicing of social distancing protocols. The government also addressed the nation on the current situation of Ghanaians in China and in particular, Ghanaians in Wuhan city and the entire Hubei Province. On March 15, 2020, the University of Ghana suspended all lectures on its campuses following a reported Covid-19 confirmed case of a student on campus. The suspension was later extended to all schools in Ghana with directives from the Ghana Education Service, MoE and the government of Ghana.

On March 30, 2020, a two-week partial lockdown was imposed in four major cities: Accra, Tema, Kasoa and Kumasi. Apart from essential service workers like those working in health services, security services, banks, pharmacy shops and some grocery shops, all activities including churches, mosques, markets and all kinds of social gatherings were banned. The partial lockdown was later extended to three weeks which brought mixed reactions on social media until it was lifted on April 19, 2020.

Reflections from the educational landscape

Ghana with a population of approximately 31M people (World Population Review, 2020) has both public and private educational systems under the MoE (headquartered in Accra) which controls several other educational units such as the Ghana Education Service (GES), the Technical and Vocational Education and training (TVET) and the National Council for Tertiary Education (NCTE).

According to Mehwish (2019), Ghana has been a pioneer in modern mass education in West Africa. The Ghanaian education system is mainly divided into three parts;

- First, the Primary Education Division (PED) which oversees over 22,052 preschools or kindergarten, about 22,289 primary schools of which around 80% are owned by the government, and about 14,767 junior high schools (Jonas, 2017).
- Second, the Secondary Education Division (SED) with about 872 senior high schools of which all public senior high schools are under the country's free senior high education program (Jonas, 2017).
- Third, the tertiary education which comprises all colleges and universities awards higher education certificates, diplomas, bachelor's degrees, etc. Ghana has about 10 public universities, 91 private tertiary institutions offering degree programs and about 8 technical universities (NAB, 2020).

During the shutdown period, most universities (both private and public) have resorted to emergency remote education. For example, the University of Ghana which had already implemented a learning

management system (LMS), SAKAI, and different forms of blended learning before the outbreak have been able to enrol their students to the LMS which gives them access to free rich online learning materials, video tutorials from lecturers, discussion forums to interact with peers, chat rooms to connect with lecturers, and online quizzes and tests, and move all assignments and peer reviews online. Lecturers are now using the live chat option to interact with students. All these have been available to the students at zero cost. In addition to that, the University of Ghana Computing Systems (UGCS), in collaboration with Vodafone Ghana, one of the largest telecommunication and internet service providers in Ghana, is providing 5gb worth of post-paid internet data to students.

Nevertheless, there is no one size fits all solution to the threat Covid-19 poses on education in Ghana. There are students who cannot get access to these new and unfamiliar learning systems as they cannot afford computers or smartphones because of their economic and social situations. Unlike the University of Ghana, other universities are not digitally well equipped and their lecturers with different levels of technology use still feel uncomfortable with emergency remote education.

For the students, It has not been easy dealing with this new normal. They are stuck at home without any idea of when they can return back to the classroom. Most of them complain of not getting enough assistance as they need. Others complain of not having enough internet data. Instructors are worried about the difficulties they face in dealing with the students who cannot manage the current situation on their own.

While most developed countries have moved online with less effort, most schools in Ghana especially in the rural communities have experienced many challenges from the beginning. Some students find it difficult to log in to their online learning platform. The general mode of delivery in most universities in Ghana are both synchronous and asynchronous and the technology that has proven to be more effective are smartphones and WhatsApp groups. Then again, a section of the students don't have access to internet connectivity in their homes and some don't even have smartphones let alone get access to online resources.

Lessons learned

We live in unprecedented times in which every aspect of our lives has been disrupted. Our educational system has been largely affected. Schools have been closed, examinations have been postponed and other activities have been disrupted. Despite all these changes to the academic calendar, the government of Ghana and MoE have been effective in dealing with the crisis and created a series of educational programs for both primary and junior high schools. Moreover, parents have resorted to homeschooling and students have been using social media to connect with each other.

The sudden shift from face to face to emergency remote education would help policymakers to reexamine the digital divide within the educational system. To meet the challenges with regards to the use of computers and other learning devices, we may need to consider reintroducing the ’one student one laptop’ initiative in the future to support students with lack of access to digital tools. And the government must develop a plan to provide free or low-cost internet service to all schools.

Suggestions

Based on observations gained throughout the Covid-19 crisis in Ghana, the following suggestions can be made.

- For policymakers: Policymakers should focus on providing technology-driven solutions to schools. They need to invest more in ICT training for educators and teachers at all levels. There should be a national e-library where students can get access to educational materials.
- For universities/schools: They need to focus more on building their own learning management platform for local teaching and learning or adapt open source learning management systems. They should invest in the development of open educational resources (OER) for local use. Better still, they should partner with organisations such as OPENSTAX and OER foundation that already have these resources available for free use.
- For students and educators: They should focus more on their wellbeing by engaging in physical exercises while staying at home. Getting enough sleep and proper diet will keep fit and strong. They need to dedicate some time in empowering themselves with some basic ICT skills by taking short online courses.

Overall country-based evaluation
The digital literacy standards and online pedagogical practices are still low despite the country's effort to increase investment in ICT skill training and ICT use in education in recent years. On the upside in the current situation, policymakers are beginning to realise the need to invest more in ICT infrastructure and use in schools and online distance education in higher education.

Namibia

Overview
March 2020 was supposed to be a big month in Namibia. The country with 2.5M people in an area roughly equivalent to France and Germany combined, planned to celebrate its 30 years of independence. However, like everything else around the world, events came to a screeching halt or took different turns when the coronavirus pandemic took the global centre stage.

The first case of the Covid-19 pandemic was confirmed on March 14, 2020, from a Romanian couple visiting Namibia. Three days later, on March 17, 2020, the country's President Hage Geingob declared a state of emergency that restricted movements and gathering to no more than 50 people. The Independence Day celebration of March 21, scheduled at the Independence Stadium was called off; instead, a smaller swearing-in-ceremony was held at the State House. After a third case was discovered on March 19, 2020, from a German tourist who arrived in the country on March 13, 2020, a lockdown was ordered for two regions and extended two weeks later to the rest of the country after the total cases reached 16 (Government of the Republic of Namibia - The Presidency, 2020). The government reported no new infections or casualties after April 5, 2020, and as of May 5, 2020, a 4-stage process of opening up the country began (Government of the Republic of Namibia -The Presidency, 2020).

Reflections from the educational landscape
In Namibia, the Ministry of Education, Arts and Culture (MEAC) and the Ministry of Higher Education (MHE), Training and Innovation are tasked with overseeing the country's education system. Learners proceed through seven years of primary school, three years of junior secondary school, and two years of senior secondary, for a total of 12 years of basic education. After completing secondary school, students can choose from tertiary institutions that include vocational training and three main universities.

Covid-19 arrived in Namibia a few weeks before the scheduled school holiday. Hence, the acting Minister of the MEAC, Martin Andjaba, issued a directive for all schools to close from March 16, 2020, until April 14, 2020, essentially moving up the school holiday. However, since the lockdown was extended until May 4, 2020, the MEAC indicated that as of April 20, 2020 schools would reopen, but no one would need to go to the physical building. Schools were, in this sense, implementing sporadic remote teaching. The ministry explored offering learning opportunities through its eLearning platform; however, it was discovered that out of 804.000 pupils in the country, only 2% were able to access the system. So, what transpired inadvertently, was a system where those with access to the Internet and/or devices were able to study and those who lacked access were not able to study. In other words, those having Internet access and the means to afford the devices to facilitate access would be in a better position to continue learning.

A similar situation took place at Tertiary institutions. When the lockdown was issued, students and teachers left their post-secondary institutions and returned to their homes throughout the country. This was significant due to the problem of unequal internet access. The main universities have their main campuses in the capital Windhoek where Internet access is well distributed. However, the majority come from outside of the capital and main cities, where internet access is limited. The unequal access in Namibia is not just about Internet coverage; rather, a predominant problem is due to lack of devices and the costs associated with accessing. Moreover, higher education institutions provide USB devices for students to access the Internet; however, many do not have laptops or computers. As a result, while universities indicated that they would go online, in practice, there was a real challenge to get students and teachers connected.

Perhaps the best way to sum up the reflections from an educational landscape is to conclude that while stakeholders made a valiant effort to mitigate the disruption to the educational system due to the pandemic, problems of inequalities hampered the process. The wealthy schools were able to provide their students with more opportunities to continue; some schools made materials available for parents

to pick them up at the school and others enabled students and teachers to connect remotely. Similarly, universities also attempted to provide virtual classes. Both teachers and students ran into the same issues of access as a significant impediment. Everyone tried, but the environment did not always make it possible.

Lessons learned

The very nature of an emergency is that one is frequently caught unprepared. The Namibian government admitted that the country was ill-prepared to respond to the crisis with regards to providing continued education. Put succinctly, the digital divide was made most visible by this pandemic in a most blatant way. Teachers were ill-prepared to teach online and they were equally unfamiliar with the technologies and pedagogies that make online teaching and learning possible.

Perhaps the biggest lesson learnt from this situation is that Namibia is not yet fully able to reap the benefits that information communication technologies can provide. Ranked high amongst countries with unequal income distributions, the Covid-19 pandemic brought to bear this gross inequality by highlighting economic disparities, especially as they relate to access. Even in areas with Internet coverage, there are still many who are unable to afford the devices needed to access learning platforms and the cost of connectivity remains for many exorbitantly high. Furthermore, the infrastructure remains unequally distributed. There are still issues with many villages not having basic services such as water and electricity. Some of these unequal distributions have historical origins where colonialism and an apartheid system ensured that the country was set up in such a way that the majority were not connected to the national communication grid. Although changes have been made and the country has made massive gains towards addressing inequalities, the fact remains that as it is in most of the world, if you are in an urban area, you have better access to Internet access than those who live in rural areas.

Suggestions

Suggestions for policymakers: Policymakers must prioritise Internet connectivity throughout the country. This will benefit not only educational institutions but also the broader community, including other industries. Additionally, priority should be given to implement information and communication technologies (ICTs) in educational policies that have been formulated over the years. Namibia is globally commended for its policies and initiatives on ICTs in education. However, the implementation of such policies that can lead to actual change has been slow to non-existent. Thus, Namibia's lack of preparedness is not due to lack of policies but due to lack of implementation or follow through. Policymakers must prioritise the implementation (and/or update) of three initiatives that were designed to unleash the power of ICTs in education. The first is the ICT Policy for Education which was designed to prepare all Namibia's learners, students, teachers, and communities for the world economy of tomorrow. The second is the Education and Training Sector Improvement Plan (ETSIP) which was designed to embed ICTs at all levels of the educational system and to integrate the use of ICTs as a tool in the delivery of curriculum and learning across all levels for ICT skills and specialisations required if Namibia is to make the transition to a Knowledge Based Economy (KBE). The third is TECH/NA!, which was launched in 2006 but has since not been updated. It aims to leverage ICTs to assist and facilitate learning for the benefit of all learners and teachers across the curriculum in order to improve the efficiency of educational administration and management across all levels. It is also geared towards broadening access to quality educational services for learners at all levels of the education system. In addition to implementing and revising policies in existence, policymakers must find a way to lower the cost of Internet access by subsiding access. Given that for most of the population internet access is made available on a pay as you go option, the cost can be a significant deterrent.

Suggestions for schools/universities: The ability for educational institutions to avoid being caught ill-prepared again is significantly tied to the decision of policymakers and government officials. This is in large part because Namibia's educational system is, for the most part, very much centralised. However, there are things that schools and universities can do to prepare their environments for emergency remote education. Specifically, schools can provide more opportunities for teachers and students to be ready to adapt to online environments. This can be done by making sure that each student before they graduate are enrolled in at least one fully online or blended learning class. For many students, during the pandemic, this was their first time taking an online course. Educational institutions must also work with the policymakers to reduce the cost for devices and Internet access. At universities, students pay an ICT fee and receive a USB device where they get unlimited connectivity to the Internet. However, many students do not have computing devices on which to use USB devices. Many students throughout the country receive government bursaries and loan schemes through the Namibia Students Financial

Assistance Fund (NSFAF). However, at the time of the pandemic, many first-year students had not received their NSFAF grants even to buy a laptop and returned home during the lockdown gravely disadvantaged. Universities must also revisit their curriculum and offer core courses online so that every student experiences online learning. The same can be said for faculty who have been struggling to teach online. Perhaps university administrations could encourage teaching loads to include at least one blended mode and one fully online course in preparation of future pandemics.

Suggestions for educators: Every educator should take advantage of the opportunities to develop online teaching competencies. Training can help add to the preparedness of educators. In terms of Covid-19, training came too late, in some places as late as mid-April. Educators need to further understand pedagogy in the context of online learning. This includes revisiting and reimagining assessments. Technologies can be made available, but if educators do not know how best to use it to provide learning opportunities and to assess learning, then the divide will only widen. Teacher development programs need to make a concerted effort to prepare teachers for a wide range of assessments and not merely focus on tests and examinations as a means of assessing learning. Even if the infrastructure is put in place, if teachers are not prepared for assessment using technology, then all we have is the uploading of content online without a way to assess the learning taking place.

Suggestions for learners/students: Learners are the ones most impacted by educational institutions and are perhaps the ones with less power to change the system. However, similar to educators, a suggestion here is to integrate ICT literacy throughout the curriculum and to ensure that students have an understanding of what online learning is and what it is not. The unfortunate by product of Covid-19 is that many have equated remote teaching (which is a reactionary response to an emergency), to the well-established field of online education (which consist of well thought out and well-planned online courses based on years of research). Changing such perceptions requires exposing students to well-developed online learning courses.

Overall country-based evaluation

Any objective observer will probably agree that the foray into emergency teaching was unsuccessful, and as the situation continues to evolve, decisions are still being made as to how to proceed. The government has decided that all teachers must report to schools no later than May 11, 2020, and that the school year can commence in August. However, some have expressed concerns about this and have also suggested cancelling the school year entirely. This is to say that the picture of what the influence of Covid-19 on Namibia's educational system will be like is still under development. The impact is yet to be fully understood.

Much will be written about Covid-19, ranging from causes to reactions and responses in Namibia. This is in part because it is much easier to reflect on how people acted in emergencies and assess their responses than it is to respond while the crisis is taking place. However, it is important to simply celebrate the fact that people were able to keep it together. In other words, what cannot be overlooked is that *people stepped up*. Despite the challenges, students, parents, teachers and the community stepped up to help one another. This is evidenced by stories of teachers going above and beyond their responsibilities, parents having to figure out homework that they had not seen in decades and learners not giving up regardless of the unfamiliar circumstances. Teachers used their own internet data to keep in touch with students, to answer questions, to communicate with parents and some donated laptops and other devices. Students adjusted quickly to learning environments that they were ill-prepared for.d. Parents became schoolteachers overnight driven by a singular focus of: "my child will not be left behind". Even the government and policymakers acted with a speed that many may not be accustomed to. Many people stepped up while they were figuring it out. However, when a country has such a high level of inequalities, it does not balance out. What is left now is to reflect, learn, and prepare for the next time a similar emergency takes place.

South Africa

Overview

South Africa is noted to be one of the most unequal societies in the world. This is due to the legacy of colonisation, slavery and apartheid. 26 years of freedom have failed to bridge the divide between the previously oppressed and the oppressors. According to a CNN report (Scot, 2019), democracy in 1994 delivered freedom to all South Africans, yet South Africa remains the most economically unequal in the

world according to the World Bank (2018). Included in this inequality is unequal access to essential public services and opportunities for moving out of the lower end of this inequality gap. These essential public services include access to water, electricity, bandwidth, healthcare as well as educational opportunities.

According to the National Income Dynamics Study 2014/15 (2018), White South Africans earn nearly three times the average wage of Black South Africans who make up over three-quarters of the workforce. The poor population of South Africa tend to live in crowded housing conditions. The world bank estimates that over 7% of the population in South Africa live in overcrowded housing conditions.

Because of this disparity between the richest and poorest people in South Africa, essentially the country operates under two distinct systems. For those people who can afford it, world-class systems of healthcare and education (both K12 and higher education) are available. Besides, South Africa has one of the highest rates of unemployment in the world (World Population Review, 2020). 55.2% of 15-24 year-olds are unemployed and not in any form of formal education. According to the report, close to 47% of youth aged 20–24 years who held bachelor's degrees or qualifications equivalent to NQF Level 7 came from the highest household income quintile. In comparison, only 7,4% of youth who held qualifications equivalent to NQF Level 7 came from the lowest household income quintile. (South African Education Statistics, 2020).

South Africa detected its first Covid-19 case on 5 March 2020 which was brought into the country by a South African citizen returning from a holiday in Italy. By world standards, the virus was slow to appear in South Africa and all the initial cases that followed were contracted by people returning from overseas travel. To all extents and purposes, these initial Covid-19 positive patients belong to the upper-middle-class society of South Africa – those who can afford international travel. As such it was colloquially labelled as the "rich man's disease". The implication of this was that those people living in crowded housing situations and squatter camps would be immune to the virus.

After the first case on 5 March 2020, the pandemic followed an exponential curve like those in other European countries. Although the raw number of cases was still relatively low, an exponential growth rate was evident and so on 15 March 2020, the president of South Africa, Cyril Ramaphosa, declared a national state of emergency. This meant that all international travel was halted, large gatherings of people were prohibited, the sale of alcohol after 18:00 was banned, and most importantly, schools and higher education institutions were closed. This was followed by a 21-day lockdown which was announced on 23 March 2020 and took effect from 27 March 2020. This lockdown confined every citizen to stay at their own home and only leave to buy essential items and for medical reasons.

Based on other countries' trajectories, disease modellers expected total cases to rise to 4000 by 2 April, even with social distancing measures—but after the lockdown, the daily increase in cases slowed abruptly, and the number remained more or less constant at about 70 new cases daily. On 14 April, the country had 2415 confirmed cases and 27 deaths. (Nordling, 2020).

After the lockdown on 27 March, the number of new cases declined considerably, and the projection based on other countries' trajectories did not materialise. There are two schools of thought regarding this slow down of new infections. Firstly, it can be argued that similar to countries like South Korea who went into lockdown early, closing the countries' borders and practising social distancing, helped slow the spread of the virus. The second explanation offered is that the slowdown in the number of new cases is due to the low levels of actual testing that has taken place in South Africa. As at 1 May 2020, 217 522 tests had been carried out of which 9992 were done in the previous day. Anecdotal evidence from a frontline ICU doctor at Baragwanath Hospital, the largest hospital in the Southern Hemisphere, is that the frontline Covid ICU staff were only tested for the first time on 1 May 2020, as before that, test kits were not available.

The state president extended the lockdown from 17 April for a further 2 weeks until 1 May 2020. In the 2 weeks since this extension, the infection rate of new cases has grown exponentially once again and as at 1 May 2020, the total positive cases sits at 5951 (COVID-19 South African Online Portal, 2020a).

Once again, South Africa sits with a conundrum. Are our new infection and death rates showing a different trajectory to the rest of the world – and if so why? Are we only at the beginning of the peak and new infection rates will surge within the next few weeks? Has this virus remained relatively consistent

with the upper and middle class of South Africa where social distancing and lockdown are relatively easy to enforce and maintain?

On the other hand, there is plenty of evidence to suggest that the poorer people have not been following the rules of social distancing and lockdown. Queues of people can be seen standing right next to each other, with no facial masks, entering supermarkets and shops, gathering together in large numbers on the streets and soccer fields and using public transport (minibus taxis) where the number of passengers has been restricted to 11 plus the driver. It is on this basis that the expected cases were expected to rise to over 4000 by 4 April 2020 (Nordling, 2020).

According to the Minister of Health, Dr. Zwelini Mkhize, the country's so-far five-week lockdown, imposed to stop the virus entering from abroad and being transmitted at public gatherings, had changed the curve of transmission. "It has assisted to deflect the exponential rise and flattened it a little bit. We are seeing a slightly different trajectory that has pushed the peak of the epidemic to around September in the best-case scenario, or July in the worst case." (COVID-19 South African Online Portal, 2020b).

The state president addressed the nation again on 28 April 2020 where he set out 5 levels of lockdown and the criteria that needed to be met in order to move from one level to another. He announced that South Africa would move from level 5 to level 4 lockdown with effect from 1 May 2020. Moving to level 4 enables people to exercise outdoors between 6 a.m. and 9 a.m. every day and for certain retail, mining and other essential service workers to return to work under very strict conditions. Level 4 does not allow for the opening of school and higher education institutions and still confines citizens to their homes unless they are deemed to be an essential worker and may travel to and from work. However, the question about the reopening of schools and higher education institutions was addressed separately a few days later by the respective ministers.

Reflections from the educational landscape

In South Africa, the education system is governed by two separate national departments, each overseen by a different Minister of Education. The Department of Basic Education (DBE) is responsible for primary and secondary schools and the Department of Higher Education and Training (DHET) undersees all tertiary and vocational training.

South Africa has some 25.000 primary and secondary schools throughout the country, and it is estimated that 20.000 of these schools are classified as dysfunctional (Wilkinson, 2015). Some of the reasons for the lack of functionality at the majority of South African schools include lack of textbooks, class sizes too large, poor facilities, lack of teachers, teacher absenteeism, poor quality of teaching and teachers who are on strike (South Africa's Education Statistics, 2020).

Most learners in South Africa attend what is termed a public school – that is, one that is funded and controlled by the state. There are currently 23.796 state (public) schools catering for 12.490 132 learners with a teacher to learner ratio of 31.3. There are also 1966 independent schools (private) schools in South Africa where the learner to teacher ratio is 11.8. The public schools account for almost 97% of all learners with only just over 3% of learners attending an independent school. Clearly, the private schools cater in the main to the middle- and upper-class members of the South African society and their facilities, class sizes, teaching staff, technology etc. are first class. Many state funded schools are termed ex Model C schools, and these are schools that were previously reserved for white learners under the old apartheid system. As such, they have adequate infrastructure and charge school fees which assist in the appointment of additional teachers. Although ex Model C schools receive funding from the government, they are administered largely by the parent body. Many ex Model C schools have the latest interactive technologies in the classroom, and excellent sports and extramural programmes. Approximately 20% of learners in South Africa have access to adequate infrastructure, technology, and acceptable class sizes. These are the learners that attend the private and ex Model C schools.

Currently, there are around 1.200.000 learners in primary and secondary schools in South Africa in 2020. The interesting fact that can be seen is, however, that the number of learners in grade 12 is roughly half the number who are in grade 1. This means that more than 50% of children who start school in grade 1 do not make it to grade 12.

The Department of Higher Education and Training is responsible for all further education after the schooling system. This consists of both Higher Education as well as vocational training through TVET colleges.

In South Africa, there are 26 public universities with close to 1Mstudents enrolled while 700 000 students are registered at more than 50 TVET vocational training colleges. In addition, there are around 90 000 students registered at other private higher education institutions. Many of these universities rank in the top 1000 universities worldwide and a few are consistently in the top 500.
The cost of tertiary education in South Africa has traditionally been prohibitive to most of its citizens, thereby contributing to the large inequality gap that exists in South Africa. Shortly before the previous state president, Jacob Zuma, was ordered to step down as the South African president, he unilaterally declared in December 2017, that all higher education tuition fees would be scrapped, and that tertiary education would be free to all you qualify through a means test. Funding would be provided through the national student financial aid schemes (NSFAS). Traditionally, however, NSFAS has been plagued with poor administration and deserving students have often not received their entitlement to assist them with their post-school studies.

Those students who are funded by NSFAS are entitled to receive a laptop computer as part of their studies. The Higher Education Minister, Blade Nzimande announced that at the end of April 2020 that laptops will be provided to all 730 000 NSAS students which indicates that the promised laptops never actually materialised (Hammond, 2020).

Although over 730 000 of the 1M HE students are funded by NSFAS and technically are entitled to a laptop computer, there are many students who are termed the “missing middle”. These students do not qualify for NSFAS funding as their monthly family income exceeds the stipulated amount, but they still fall under the lower middle-income earners whose families must make large sacrifices and struggle to afford to send them to university. Many of their parents are employed as teachers, nurses, firefighters etc. who traditionally are very poorly paid.

On 15 March 2020, the state president ordered all schools to close with effect from Wednesday 18 March 2020 although many schools chose to close immediately after his announcement. At this stage, there were still less than 20 confirmed Covid-19 cases in South Africa. All schools were due to close on 20 March for the Easter holidays and reopen on 10 April. Although it could be argued that the school shutdown took place very early in the pandemic, it must be seen in the light of the fact that it was only a few days earlier than the scheduled Easter break.

Higher Education institutions were closed shortly after the national state of disaster was declared on 15 March 2020, and most of the institutions were shut down before the national lockdown on 27 March 2020. At that stage, the thinking was that all institutions would open again after the 3-week lockdown ended on 16 April and education would be back to normal.

The response to the educational needs of the school learners has varied depending on which system they fall under. In the case of the school system, most of the private and ex Model C schools were able to convert their teaching to a remote form of teaching, mainly using Google Classroom. Some of the top private schools were already in a position to roll out online learning and have been working on this mode of delivery for quite a while already. These schools have sent the teaching and IT staff on training courses both locally and internationally and have the luxury of being able to plan for the future. A blended learning model is already in operation and these schools were well prepared to move seamlessly to this mode of delivery. These schools are, however, in the minority and thus positively affect only a very small percentage of our student population. For the balance of the private and ex Model C schools, they continued with their normal teaching but just not in a face to face situation where the technology (laptop, tablet, cell phone etc) was replaced as the form of instruction. Remote assemblies were held where students could log on and be addressed by the principal of the school and synchronous classes were set up by some very innovative teachers.

In most cases, this was referred to as a form of home-schooling, where the parent now replaced the teachers. This proved problematic on 2 accounts. Firstly, many parents were working from home and so did not have the time to be available to assist with these online classes and secondly, the parents were not always au fait with the content of the work, particularly in a subject like mathematics.

The deciding factor in the success of this online learning that was implemented rests firmly with both the learners and the teachers. The largely untaught skills of motivation and self-directedness and are essential if online learning is to succeed. These skills are required by both the learners as well as the teachers as they have not become familiar with a completely new pedagogy and understand that teaching online is not the same as teaching face to face and simply putting your class onto glass. For those learners who possess these attributes, the challenge to online learning in their own home environment has been smooth and exciting. Many others have not been adequately prepared for these changes, similarly for their parents who have had to stand in as the teacher.

For the balance of the 80% of school children in South Africa, teaching basically came to a halt. In many, if not most of these schools, overcrowding is a way of life – most classes have 40-50 or more students and they are required to share desks and textbooks (if they are available). Having said that, however, the majority of students do own cellular telephones even though they complain of hunger and have no money for their transport home. The school environment does, however, provide them with limited access to Wi-Fi which they will not necessarily have when they are at home. Many of these schools did try to and remain in contact with the learners who had cellular telephones, particularly the grade 10, 11 and 12 learners. These contact sessions were not, however, not intended as teaching sessions, but rather from a pedagogy of caring perspective. For many of these learners, the school is their only safe environment and source of stability and protectiveness. It was for this reason that some of these poorer schools tried to keep contact with their learners – just to show them that they cared.

For many of the teachers working in these schools, each day is simply a matter of survival, trying to instruct the children in environments that are not conducive to teaching or learning. They are hardly in a position to think ahead and develop new ideas for their practices. As such, little or no teaching has taken place for the vast majority of the South African learners during the lockdown.

For the universities in South Africa, their mandate was to move to online instruction as soon as the lockdown was implemented. As mentioned earlier, this caused a huge problem as over 730 000 students rely on NSFAS funding which is supposed to provide a laptop to each student. On 30 April 2020, the minister of Higher Education announced that no student should be left behind with online learning but realistically this might not take place until the end of the year. The minister also explained that of the 26 universities, 14 are going to battle to cope with online learning (Hammond, 2020).

Most of the universities moved straight to online learning to replace face to face classes. A lecturer at the University of Pretoria was told that she needs to simply prepare all her lessons as usual and then present them in front of a camera that will record the sessions and stream them to the students. This seems to be the modus operandi of many of the universities – simply replacing face to face teaching by presenting the same content online. In other words, online teaching pedagogy has been largely ignored or it has been totally new to the lecturing staff. A good analogy here would be to liken it to turning a good book into a movie. It is not good enough to simply copy the book page by page onto the screen in video format – one needs to take advantage of the added features of the video format and leave out much of the written content of the book.

Many universities have made extended use of their LMS's to create additional student activities to enhance their learning. However, research suggests that most students only use their LMS for administrative purposes and not for teaching or learning. Students are going to need training and awareness campaigns before the LMS is going to be an acceptable technology for teaching.

The University of South Africa, which is a distance learning university with over 350.000 students, still operates predominantly from a correspondence mode of teaching and learning, although many activities are available online. Most courses are however still presented via a study guide and tutorial letters. Almost a third of all university students in South Africa study through Unisa and so for them, teaching remained largely the same. Most of the problems that they encountered through the use of technology resulted in administrations issues and not teaching and learning.

As is the case of school learners, university students are also battling to adjust to this new way of teaching and learning. A colleague who runs individual learning sessions for students, says that he has been overrun with requests for assistance from university students who have been moved out of their comfort zone and into a new way of "doing business".

University lecturers have not escaped these changes, too. In a 2018 study, Roberts (2018), found that lecturers in a traditional distance education university in South Africa displayed a fear of using technology in their teaching and rated their lowest competencies to be technology usage and instructional design.
A few years back, the University of South Africa's teaching staff were all challenged with converting their courses online within an 18-month period. There was so much resistance to this request that it was put on hold until further notice (this date was not finalised by May 2020).

Lessons learned
The biggest lesson learned, in my opinion, is that we were totally unprepared for this pandemic and that the education system as a whole is lagging far behind other industries with regards to innovation, future planning and the ability to adapt quickly.

The digital divide in South Africa follows the enormous inequality gap in the country. Only a handful of schools operate at a first-class international level in terms of technology and future preparedness. Many schools in South Africa do not even have access to running water and have to make use of pit latrines. Accessibility to computers for these learners can only be a pipe dream and because they have grown up in houses where there is no connectivity or technology, their digital literacy skills are also very low. It is a day to day struggle for survival for many of the students and already they must learn under very trying circumstances. Many students do not have access to electricity, have no desk to work on at home and live in overcrowded circumstances. They literally study form (borrowed) books, working under candlelight, while the rest of the family are sleeping. Online learning for them is nothing but a pipe dream.

As stated in the beginning of this report, South Africa is a dichotomous society with a large discrepancy between the rich and the poor and as such, our educational responses to Covid-19 reflect this inequality. Poor countries cannot afford lockdowns and in the case of South Africa, we are only now emerging from a decade of state capture and subsequent squandering – resulting in increased levels of poverty for most of the citizens. Covid-19 has not caused the schooling crisis – it has just exposed how large the discrepancies are in the South African education system.

The Department of Basic Education has released a statement that all schooling will recommence at the end of May (only grades 7 and 12) with the other grades being absorbed in at varying times. The emphasis on the reopening policy is to ensure that the infrastructure is safe – there are guidelines for installing water tanks, additional desks, hand sanitisers and masks and temperature detectors. This is a massive task as many of these schools do not even have the funds to employ more than 1 cleaner for the whole school. Attention to teaching and revised pedagogy and curriculum realignment takes the secondary stage and is hardly mentioned in the statements regarding the opening of the schools.

With regards to universities, many of them assumed that teaching could simply be transferred directly from face to face to an online mode. A real understanding of the conceptual and theoretical frameworks around distance education (and specifically online distance education) do not seem to exist. An analysis of research articles published in Scopus journals by South African authors using the search lines "online" and "e-learning" yielded only 90 journal articles over a 4-year period. A distance education institution such as Unisa, should be seen to be the leading research institution on online learning – and they are still employing a correspondence mode. This is exacerbated by the fact that most university students do not seem to have access to laptop computers because of the administrative bungling of the funding agencies.
A further challenge lies in the mindset of both the students and the teachers. The usual way of doing academic business is to teach content (behaviourism) and students rely on their lecturers and teachers to present this content to them face to face (which is still sadly deemed to be the best way of teaching). Many students argue now that the circumstances surrounding the lockdown are responsible for them not being able to learn -so it is not their fault. They need to be taught and to develop the skills of self-directedness and responsibility for their own learning. This is where a real opportunity exists for changes to our content rich curriculum to incorporate higher levels of thinking and responsibility.

Suggestions
For many years now we have been hearing the talk about bricks and mortar learning institutions becoming relics and that the future for education is online. Over 10 years down the line we are still talking about this but not really preparing ourselves for this eventuality. Covid-19 has certainly been the push factor for this to become a reality. Nobody knows how long we are going to be confined to our own

houses, practice social distancing and avoid large gatherings of people. The world was warned about a virus for a while now and there is no guarantee that another one will not rear its ugly head any time soon. Education needs to be prepared now. We had a warning during the Arab Spring uprising in 2011 and the #feesmustfall campaign in South Africa in 2016, where educational institutions were closed down. We started talking about online courses for universities and schools and even studied the increasing attention being given to MOOCs and OERs. However, we just looked from the sidelines.

Both schools and higher education institutions need to be adequately prepared and equipped and show the desire to move to a new way of teaching and learning. This will involve securing adequate technology, bandwidth, digital literacy skills, new pedagogies and innovative ways of thinking. Innovation needs to be encouraged and rewarded. Now, more than ever, disruptive technologies need to become mainstream and the education sector cannot sit back and wait any more. In South Africa, we have, according to some experts, already lost a year of schooling – this is a country that can least afford it.

Uganda

Overview

What sounded foreign to many Ugandans at the beginning of 2020, soon became an everyday reality, disrupting the lives of many people. Uganda's history with public health emergencies such as HIV, Marburg, Ebola and Cholera means that the onset of any new emergency incites strong and conflicting emotions. However, it has also taught us to be vigilant and proactive.

So, as early as February 11, 2020, the MoH issued a statement calling upon the Public Health Workers (PHWs) and the country to stay vigilant. A call to action saw PHWs organised into teams to track returnees from abroad and screening protocol at the Entebbe International Airport began. Meanwhile, the country's only coronavirus testing centre, Uganda Virus Research Institute (UVRI)'s capacity to test was strengthened (MoH, 2020).

When news broke about cases of the novel coronavirus in Uganda's neighbouring countries of Kenya, Rwanda, Tanzania and Somalia, the President of Uganda acted quickly by putting measures to curb points of congestion. On March 18, 2020, President Yoweri K. Museveni addressed the nation on coronavirus and also issued directives for the closure of schools, universities and tertiary institutions; an immediate ban on religious gatherings, political and cultural meeting, and large wedding banquets; out-bound movement by Ugandans to 16 countries (countries with the most Covid-19 cases); mandatory quarantine of Ugandans coming from abroad, at the returnee's expense. (New Vision, 2020)

Upon registering the first case on March 22, 2020, of a returnee from Dubai, the president issued a more stringent directive, banning all flights into the country with the exception of cargo planes and their crew members. Increasing cases consequently resulted in additional restrictions. From a ban on all forms of public transportation that left three-quarters of Uganda's workforce stranded and a ban on all non-food markets; to a ban on the use of private vehicles and the opening of shopping malls, arcades, non-food businesses. This was followed by a country-wide curfew, prohibiting people's movement between 7 PM to 6:30 (Daily Monitor, 2020).

By early May 2020, 98 cases have been confirmed in Uganda, 55 recoveries and zero deaths. Also, restrictions have been relaxed, allowing several non-essential businesses of hardware, garages, metal works, woodworks, insurance providers and lawyers to operate amid the lockdown. Much of the discourse has centred on the ability of the country's feeble economy to withstand a lockdown and the survival of the 46% of its population that survives on hand-to-mouth (Anguyo & Storer, 2020). As different ministries presented their response plans, the conversation has remained mainly on survival and increasingly on the ways to continue education for pupils and students currently 'redundant' at home.

Reflections from the educational landscape

The system of education in Uganda has a structure of seven (7) years of primary education, six (6) years of secondary education (divided into 4 years of lower secondary and 2 years of upper secondary school), and three (3) to five (5) years of post-secondary education. Education was one of the first sectors disrupted by Covid-19 in Uganda. Long before the first case was reported in the country, more than 73,000 learning institutions were closed following the president's directive. As a consequence, 15M

learners and 600,000 refugee learners were out of school (Javira Ssebwami, 2020). These learners were at different levels and required different educational needs.

The largest education sub-sector affected was the Primary Level that accounts for over 10M of the total learners' population in the country. The numbers have steadily burgeoned since the introduction of Universal Primary Education (UPE) in 1997. The Pre-Primary are the second largest group of learners followed by the Secondary students, Tertiary comprising degree-awarding universities and 'other tertiary institutions' offering diplomas and certificates, and the Technical and Vocational Education and Training Level (BTVET) respectively (MoES, 2020b).

The abrupt closure of all institutions of learning caught both rural and urban institutions off-guard. There were no immediate response plans as every institution struggled to adhere to the directive. In the immediate closure of schools, the main concern was the safety of pupils and students as several traversed through the country to return home. Mobile phone communication was mainly used for follow up, as telephone/mobile phones numbers were requested from students and parents/guardians. Subsequently, through mobile applications like WhatsApp, home packages were sent electronically to pupils and students. Institutions that had embraced the use of Information Communication Technologies, mainly international schools, and private universities, moved learning materials online to support learners. Learners, teachers, and other education stakeholders were optimistic that the closure would have been short as was reflected in the MoE's address to the nation post-closure.

As more Covid-19 cases were reported, optimism was replaced by despair. The most affected groups were pupils and students who depend on school for not only learning but also for their security and nutrition (Korugrendo & Benson, 2011). Teachers whose wages were equated to the services they provide was another affected group. To restore hope, the MoE announced a tentative schedule for the commencement of all institutions on learning (Matovu, 2020). However, as the tentative date drew near, there was evidence that schools could not reopen (Marketwatch News, 2020). The Ministry then announced a Covid-19 education sector response plan (MoES, 2020b). The plan looked at response measures of three scenarios; (1) Schools closed for 1 month (current scenario at the time); (2) School closure for 1-6 months (worst case scenario) and; (3) Risk reduction and recovery to normal programming (the country is announced to be free of Covid-19) (MoES, 2020a).

By end of April, the MoES started rolling out measures for the second scenario: distributing of printed self-home study material to learners adapted into large print and braille for learners with special needs through local councils; use of radio live recorded lessons and live presentations placed on SD reader cards and memory cards for learners with special needs; televised lessons that are making use of interpreters for learners with hearing impairment, and; online uploads, uploaded particularly to phones. The focus was on facilitating primary and secondary level learners to acquire the required competencies and knowledge for a specific level. Two hours per day were allocated on radio or television for all the levels for 6 days a week. This translated into 12 hours per week for all the classes, equating to 48 hours per month (MoES, 2020a). After further consultations, the President announced on May 18, 2020, that all pupils and students in candidate classes (primary seven, senior four and senior six) and in the final year at higher institutions on learning will commence their learning starting June 4, 2020.

It should be noted that universities and BTVET were not covered in the MoES response framework. However, universities like Uganda Christian University, the largest private university had moved to online teaching and had gone as far as preparing take-home examinations in an effort to conclude the Easter semester (UCU, 2020). Petitions by some students against the Take-Home Examinations resulted in the MoES producing a stay of issuance of any manner of examination whatsoever. Other endeavours by higher institutions of learning include a partnership between Makerere University (the largest public university), with MTN Uganda (the largest Telecommunications Network) to allow students and lecturers to access learning platforms free of charge (Mulengera News, 2020).

Lessons learned

All efforts to support continued learning are laudable because one solution cannot counteract the challenges of the education sector posed by Covid-19. That being said, it is evident that the nation and the education sector, in particular, was not positioned to handle challenges posed by the emergency. Uganda experience with public health emergencies such as HIV, Marburg, Ebola and Cholera notwithstanding, the effect of such emergencies on education provision has not been properly understood within the context of the lives of people affected - pupils, students, their families, teachers

and principals, education officials and college/university lecturers. And consequently, the education sector has not been strengthened to support large-scale emergency remote education demanded by Covid-19 social distancing prevention measures.
Moreso, how can the country advance remote teaching within a context where its vast majority live in rural areas and lack basic needs for livelihood. According to the African Development Bank, 10M Ugandans were living below the national poverty line in 2016/17; inequality across country regions persists; two-thirds of the working-age population is in agriculture, and; only one-fifth is in paid employment or themselves employers (AfDB, 2019). These statistics imply that many learners come from a context of social deprivation. Furthermore, the short-term and long-term effects of Covid-19 will exacerbate social-economic hardships with ripple effects as families consider the financial cost against the opportunity of education (UNESCO, 2020a, 2020d).

The new measure to use digital technology to support learners may not be effective in providing an equitable education to all. For example, although the National Information Technology Survey 2017/18 found that 70.9% of individuals owned a mobile device, issues of availability to a charging point, the model of the device, access to and affordability mobile internet, hinder mobile learning as an equitable method of supporting continuous learning (NITA, 2018). Furthermore, only 16% of Ugandans own a smartphone according to the same survey. In addition, despite the advancement in mobile technology, questions of if sound pedagogy can be practised via this mode persist (Beaudoin, 2007).

Similarly, although radio stations are spread all over the country and even most upcountry towns have at least two, only 65.3 % of households own a home radio. The statistics are much lower for television ownership, with most regions having between 3-1% of households owning a television (UCC, 2018). More importantly, the learners who mainly live in rural areas, often must work to supplement the family income or are part of the labour force for agriculture. As a result, continuous and reliable listening/watching of the education programmes cannot be assumed.

Suggestions
In light of the transformative power of education in restoring hope and facilitating a strong public health recovery, all stakeholders must prioritise education in Covid-19 response. Policymakers must continue to seek long-term solutions that allow equitable education for all through consultation processes, learning and interaction with stakeholders. Policymakers should avoid short-term political and emergency-induced solutions that are often short-sighted and are not holistic. For example, the investment of immense borrowed resources in ineffective short-term solutions seems self-destructive for an education sector still confronting the challenges of access to, quality of, and relevance of education, at all education levels. Rather, resources could be used to support a shift to a child-centred pedagogy, teacher training, curriculum development to incorporate ICT, improve the abysmal school infrastructure of most UPE schools, and provide instructional materials (Daily Monitor, 2013; Mafabi & Mbabaali, 2017; Namwanje, 2020).

Institutions of learning, educators and learners must embrace the use of Information Communication Technologies in the learning process. The current pandemic has clearly exposed the vulnerabilities of our education system. As a nation, we cannot continue to side-step the role of technology in education. Educators must lead efforts to steer away from the traditional rote learning approach with very limited scope for the application of concepts to a more practical and interactive approach that supports critical thinking, creativity and lends itself to a learner-centred instructive approach. Therefore, teachers must disassociate their identity and self-worth from their authority in the classroom and learners must be empowered with the attitude of owning their own education journey.

Overall country-based evaluation
E-learning has been globally cited for being an alternative to traditional classroom-based learning. However, the current state of technology infrastructure and access in Uganda only allows for electronic measures to serve a few learners with basic programs and cannot be comprehensive or long-term solutions.

Unfortunately, the difficulty of accessing learning technologies and the digital divide between privileged and deprived groups continue to widen the educational gap. All education stakeholders must rethink current strategies and demonstrate preparedness to restore hope by rebuilding an even stronger and more resilient education system for equitable and quality education leading to relevant and effective learning outcomes.

Australia/Oceania

Australia

Overview

Covid-19 was confirmed in Australian in late January 2020 and was taken very seriously by individuals and the government as the pandemic situation in China and Japan unfolded on our doorstep. There was panic buying of essential household items and also medicines, which was experienced elsewhere. With the exceptions of a few cruise ships which were not handled well, Australia closed borders relatively quickly to stop the spread of the virus from international travellers. Some states closed borders to restrict inter-state travel quite early including the Northern Territory which has a large Indigenous population. Covid-19 came right on the back of one of the most devastating bushfires seasons, leaving regional students and communities vulnerable particularly where families have lost homes.

Australia made the move to working from home fairly quickly, and all but essential services were shut down. Police fined people for breaching social distancing requirements and travel restrictions. The government told people to stay at home during the popular Easter school holidays, and they could not hold celebrations with their extended family. Beaches and playgrounds were closed as social distancing requirements were not being upheld. People were allowed to go out to exercise and for compassionate reasons like taking food to elderly family members. Those over 70 years old and Indigenous people over 50 (considered vulnerable) were asked to completely isolate at home. As of May 3, 2020, Australia had 6783 cases of coronavirus and only 93 deaths. As we have successfully flattened the curve and Covid-19 cases have dropped drastically, people are tiring of the social restrictions and groups of people can be seen in public spaces and shopping centres. By May 4, 2020, some states were beginning to loosen restrictions on socialising and by May 20, 2020, most states had announced June dates for K12 children and teachers returning to classrooms as well as the incremental return of shops and services.

The government's financial support for welfare recipients (the aged, unemployed and students on low-income) were welcomed and provided a great deal of relief and certainly for many Australians. Casual workers in retail, hospitality and the arts industries, however, were left with little support, which produced distress for university students who rely on the work to live and study. Some state governments provided additional assistance, but it was not consistent.

Reflections from the educational landscape

In Australia, with a population of 25.5M (World Population Review, 2020), there are approximately 3.65M K12 students and 1.8M Higher Education students, made up of 1.3M university students and another 0.5M enrolled in Technical or Vocational Education (TAFE).

The school and higher education systems were close to the end of the first term break when the situation deteriorated, and many parents took children out of school early. Some universities went on break early or suspended classes for a week to plan for what soon became an inevitable online pivot. Many school teachers and parents spent the Easter break preparing for school work to be undertaken at home. There was a general acceptance that Universities would pivot to online, but many parents, teachers, learners and community members struggled to see how K12 teaching could be done online.

While universities were encouraged to stop all face to face activities as soon as possible, and parents who could care for their children at home were encouraged to do so, schools were expected to remain open for the children of front-line workers. This became one of the most contentious issues through the government's management of Covid-19. While at first schools had to operate with social distancing, with children separated by 1.5 metres in classrooms, by May the Federal government stated this was no longer necessary citing the very few cases of community transmission of pupils or teachers in schools. Many teachers and some parents were not convinced that it was safe and on May 20, 2020, some parents were planning to keep their children at home for longer despite the Government's strong preference for a full return to school as quickly as possible.

University response: After a few weeks announcing financial support and assessment extension/flexibility for students, university announcements turned to how to address 2021 university admissions (Lambert, 2020). There was a debate about whether it was fair for the Year 12 (final year) schooling examinations (linked to University entrance scores) should take place or be postponed. Some universities announced an expansion of alternative and early entry schemes which take Year 11 marks

into consideration for 2021 entry. The Federal government support package for universities was announced but it only guaranteed funding levels for domestic students. There was little support for Australia's 700K international students leaving Universities had to dig into their own emergency funds to provide financial relief for International students. While $110 Million has been provided overall the amounts available at different universities are highly variable (Study International Staff, 2020).

In terms of how the "online pivot" was delivered for Australian University students, the responses varied depending in large part on the experience of the teachers and the institution with online delivery. Newcomers to online learning tended to prioritise putting content online including the delivery of live/scheduled lectures. Institutions quickly investigated online proctoring services so that traditional exams and assessment tasks could continue. Those more experienced with online learning and teaching of diverse students tended to prioritise anytime or asynchronous learning with optional live or scheduled sessions to maintain equity of access.

Schools response: There has been a continuum of delivery between paper-based packs of materials to work through and fully online delivery, with a mixture of the two often used. Even within the same schools, there is often a range of paper/online responses depending on year level, online tools and support and teacher/learner/parent comfort levels. Where online tasks have been used these are mostly anytime or asynchronous tasks and discussions, with scheduled or synchronous opportunities prioritising social support and connectedness between teachers and peers. The National broadcaster put more school-age focussed educational programs on the free-to-air television but it is unclear how much parents can integrate it into lessons but perhaps used by parents needing to entertain their children with more educationally focussed programs.

Lessons learned

Australia's decades of experience in distance and online education serving mature-age, part-time, regional and remote served it well during the Covid-19 pandemic. Regardless of the skills starting point, all teachers (and learners) across the country rapidly upskilled in all kinds of technologies and flexible arrangements. Responses from institutions, educators and governments have been swift and largely effective. However underlying issues of inequality and de-funding have been exacerbated.

Parents found emergency remote education for schooling very stressful and often too much to ask, particularly those that are already working from home. The labour has seemed to have fallen predominantly on women/mothers and this is a hidden problem that remains unacknowledged in Australia (although starting to be discussed in the U.S.A and Japan). The impact of increased caring and schooling on women also resulted in a drop of up to 50% in academic paper submissions contributed by women over the 6 weeks of the pandemic, with men's contributions to journals increasing (Kitchener, 2020). The interpretation is that the pandemic and emergency remote education widened the already large gendered divide between unpaid labour and recreation time in Australian households. Apart from the negative impact on women's careers as they miss publishing/tenure milestones, it is unclear what impact this will have on children's understanding of gender norms, work and caring into the future.

Media reports also highlighted difficulties for some families and indeed teachers being able to participate in the "online pivot" where they have little, shared or even no access to the internet at home. Media also highlighted the resource divides impacting what public vs private schools can provide. For example, a major evening television news program interviewed two mothers about their first week of schooling at home, one from a private and the other from a public school. The private school child had three live sessions with teachers each day, but the public had only one in the week. This highlights the ongoing need to attend to not only the digital divide of available technology and support between and within schools but also a divide in staffing/resourcing and student-staff ratio.

At the end of April 2020, the Federal government offered $15M to private schools to incentivise towards their new goal of all schools being open and teaching students in the classroom by the end of May. This inequitable decision angered those in the public school system who waited to understand what kind of support they could receive, requesting extra funds to get individualised teacher support for disadvantaged year 12 students in their final year of study in an already overstretched and underfunded public school system. It was feared that these students might have fallen even more behind their more privileged peers, which would impact the equity distribution of higher education applications and enrollments into the future.

Suggestions

Suggestions for policymakers: If Australian education is to remain the "fair go" mass education system it is renowned for, governments and policymakers need to listen to the depth of pre-Covid-19 research and policy advice about how to turn inequalities around and make a stronger post-Covid-19 effort to invest in public education systems to ensure those who cannot afford to pay can still get a good quality education and the country's positive growth and skills do not fall behind.

Suggestions for schools/universities: Universities have already used the experience to invest more time and resources in staff development for quality online learning and should continue on this positive trajectory. The efforts should increase capacity for quality and inclusive online learning focussed on varied, supported student-centred learning and assessment. Continued investment in staff development, shared/open platforms and shared open/resources can help staff who have done an outstanding job getting their content online in 1-2 weeks to further deepen skills in online pedagogy and inclusive online facilitation for student benefit. Schools and Universities would do well to collaborate on formal staff development including recognition of online teaching qualifications and/or micro-credentials rather than duplicating efforts at each institution.

Suggestions for educators: Australia has a wealth of expertise in online learning, but it is concentrated in regional/distance learning organisations and post-graduate teaching areas - there is less experience teaching undergraduate and school students online. Educators tackling online learning particularly for mass, the undergraduate level should seek out and listen to local instructional designers, equity practitioners and non-traditional students themselves to ensure the choices made in online delivery are flexible for the diversity of student populations. Staff should avail themselves of national networks such as ASCILITE, ACODE, CAUL and EPHEA who offer free and subsidised opportunities for staff to network/learn from experts in inclusive online education. As school teachers return to the classroom, some may incorporate blended learning into their regular work depending on feedback from students and parents.

Suggestions for learners/students: If online learning is not viable for you, take advantage of relaxed deadlines to withdraw from university classes without penalty and postpone some classes until campuses are open again. Otherwise, ask for the help you need from your teachers and also your family to provide you with as much quiet time and space to give your online learning and assignments your best chance of success. Even if you can keep in touch with 1-2 students with similar goals or circumstances as you, it will help you feel happier and more able to make it through.

Overall country based evaluation

Australia's response to Covid-19 has been swift and effective, with systems providing a fair degree of flexibility and choice for learners, workers and families. There has been a genuine level of care by Australian educators for their students and a general understanding that everyone is doing their best with acceptance of emergency remote education as a great outcome for those who've never taught online and expectations of a more flexible version of distance/online learning for those already doing it. This pandemic has also shown that despite previous statements to the contrary, there is barely any level or area of study that cannot be provided online to University learners with anxiety or disability who flourish with self-paced online provision as their preferred adjustment. This situation should continue as business-as-usual and increase Australia's attractiveness as an online provider for learners with disabilities. Australia continues to rely on commercial resources, texts and platforms and Covid-19 has not so far shifted attention to OER or OEP in any concerted fashion however skills have been developing in these areas and it may well be that post Covid-19 they will be taken up more seriously as a way to prepare and deal with what looks like another economic and financial crisis in the education system.

Europe

France

Overview

The population of France is approximately 67 million (World Population Review, 2020). There are around 13 M K12 students (MENJ, 2019) and 2.7 M higher education students (FHEd) (SIES/MESRI, 2019). The first European Covid-19 case was identified in France on January 24, 2020, and spread rapidly particularly in the North-East of France, where the situation became critical by the end of February. The

cancellation of events became frequent and social distancing was put into place. The government didn't have enough tests to systematically diagnose individuals and not enough masks to protect all healthcare staff. The French President announced a complete lockdown beginning on March 15, 2020, advising employees to work remotely where possible, and closing schools and universities. Some schools were kept open to take care of the children whose parents had to work. The lifting of the lockdown began on May 11, 2020, with K12 students returning to schools, where schools and parents agreed to do so, whereas universities were considered to be only open to staff, but not to students until September 2020 (Educpros, 2020).

Reflections from the educational landscape

The ministries for National Education and Youth (MENJ) and for Higher Education, Research, and Innovation (MESRI) requested "pedagogical continuity". In primary schools, courses and exercises were sent through e-mail and/or a dedicated digital working environment (a platform dedicated to manage student's personal diaries, grades, homework, and payments if any: usually, such platforms are not used in primary schools). Home schooling was mainly asynchronous, although some teachers organized video conferences with students and their parents to maintain communication, stay informed, make informal assessments, or, in some cases, to give a digital break during the chaotic times. One example of a digital break was a teacher who lectured for 20 minutes and then allocated another 20 minutes to five pupils to speak to each other. In France, classes often have 30 pupils, therefore teachers sometimes organised smaller groups to be able to keep a good quality of relations with them. It is believed that the trust between teachers, parents and students, which is essential for learning, has perhaps been questioned a little, with the distance imposed by digital devices and the lack of self-assurance of some teachers with these new tools. However, such an approach makes it possible to create a new digital trust (Milad & Domenicucci, 2017), by alternating moments of learning and moments of human relationship.

K12 students in secondary education could access the "My Class at Home" platform offered by the MENJ. Students were provided texts to view or print at home and received assignments per email or digital working environment. During these times, many teachers were responsible for care duties of their own children alongside pedagogical care of their students. While students were supposed to study at home and to access learning content through computers and print them, their parents were also supposed to use the same devices due to remote working requirements. Following these developments and the impossible organisation of classical exams, it was decided to reorganise assessments and exams, and continuous assessment approaches were put into practice instead.

In FHEd, institutions developed their own digital strategy without a central policy (Mocquet, 2020). Most of the universities used LMSs to shift to emergency remote education, however, such a strategy required a huge workload for those who were responsible for these processes (e.g., IT staff and techno-pedagogical teams). They swiftly prepared tutorials, provided hotlines to support instructors and designed courses. Some of the instructors used web tools such as Discord, Zoom or Google Meet in order to provide most of the courses through synchronous technologies. Furthermore, some instructors were sharing their textbooks through LMSs (e.g., Moodle) and email. In addition to these developments, MESRI sustained active communication through websites, email and a social networking tool (Whaller). The university presidents set up a crisis unit within the Conference of University Presidents to collect examples of best practice and make common decisions.

To complement the above, many existing educational resources and innovative tools were made available to the public and used by both teachers and students. TV channels and various websites offered cultural shows or courses. K12 teachers recommended a range of educational technology tools to each other because there wasn't enough time to test and adopt already available tools. In FHEd, many OER were promoted and educators were encouraged to use them. Webinars were organised to raise awareness and inform people (e.g. on distance exams, well-being and motivation) (L'Université Numérique, 2020). FUN, a public MOOC platform in France reactivated all former MOOCs and created a website dedicated to the voluntary deposit of educational resources using open licences, allowing teachers to revise, remix and reuse them for educational purposes (FUN, 2020). The Open Badge community organised the "Night of the Open Badge" and each member could earn a badge created for the occasion "I survived the Week n°1/2/3 of the Covid-19 lockdown".

This crisis has highlighted a heterogeneity of behaviour in the use of digital tools in France. Teachers and instructors realised the necessity and their obligation to move their classes online and to share a

clear walkthrough of their courses for students. One of the examples in FHEd that can be taken to illustrate this is the case of the paradox of the degree supervisor. The degree supervisor must implement, sometimes for the first time, the university's digital strategy, i.e. use internal digital devices while respecting students' privacy - relying on Moodle for 94% of institutions (CSIESR, 2020) - and to meet the needs of students as quickly as possible. The students often demand the use of digital technologies from "The Five" (in France, the five refers to Google, Apple, Facebook, Amazon, and Microsoft) or digital tools from their daily life. As a result, both modes (internal or external digital technologies) were available during this period in universities and schools.

Some students appreciated a more intimate way of learning, and others found transactional distance challenging. Most of the students, living in 9 square meter places, felt alone and abandoned in many ways (especially foreign students) because they didn't have any tools to access educational content delivered online and they eventually dropped out of their courses. More dramatically, thousands of students lost their jobs, which increased their anxiety and led to them starting to question their capacity to attend to their education, leading to further concern about their future.

Lessons learned

In FHEd, emergency remote education has been taken into consideration in all its complexity. As mentioned previously, it impacted, and still does, social, technological, and organizational aspects of the higher education system. The right approach was the rapid technological and societal adaptation of various staff, working collaboratively and remotely, and the development of skills by teachers and learners, including a part of creativity, and this, during several weeks. We observed frugal innovation from teachers in order to ensure *pedagogical continuity*. Besides, French experts provided feedback in public articles, e.g. reaction to the article of EDUCAUSE (Hodges et al., 2020) in particular by Jean-Marie Gilliot (Gilliot, 2020), who reminded us of "the difficulties, and the innovations produced in response to the crisis, from a teaching point of view, and incidentally the professional development of teachers (and students)", "the capacity of institutions to manage crises, in order to better prepare for the next one" and "being part of a change that has only just begun by integrating the question of values". The wrong approach was a relatively slow response to the loneliness of many students who spent lockdown days in small rooms, with little or no human contact and who were deprived of basic needs, such as accessing university restaurants.

In addition to the above-mentioned issues, the following observations were noted:

- The digital divide amongst students was frequently observed and dropout cases were frequently reported. Unfortunately, easily printed or printable textbooks were not made available as a quick and efficient response.
- Examples of best practice shared by internal teams included recommendations on accessibility e.g. Making your Moodle course accessible (Université de Lille, 2020). Accessibility is meant to have the following characteristics in the French context: interoperability, easy sharing and printing.
- Within a short amount of time, public infrastructure (servers, access to the internet, electricity, etc.) was challenged and was sometimes not available to users. Teachers, therefore, often privileged pragmatic use of external, commercial platforms and discovered many features on those tools. However, it is hoped that institutional infrastructure will improve and that students and staff will go back to the tools offered by internal services, in order to ensure data privacy and mutualised services at a national and international level. It is suggested that institutions take time to discuss this.
- Misconceptions in practice (e.g., imitation of face to face education) indicated the importance of reflexive thinking and further stressed out the need to support teachers by pedagogical experts.
- Traumatic and psychological issues that students encountered was a hot topic. For some students, the reason for the trauma was loneliness and poverty, while for others, it was the fear of losing a full year.

Suggestions

From the observations and impressions gained during the Covid-19 crisis, the following suggestions can be taken into consideratiıon:

- For policymakers: Every single publicly funded resource should be open and their development should be promoted. We also suggest that educational resources, funded through any specific procurement, should be openly licenced and not closed within a private digital environment as the European Copyright Directive foresees it (art. 5.1, an EU Directive 2019/790 on copyright and related rights). It suggests offering printable (or printed) open resources to all grades, to lessen inequity.
- For schools/universities: Educational institutions are suggested to share and construct (with designers) the best practices developed in emergency remote education. However, this should not lead to questioning the best practices acquired by experts on distance learning (Frau-Meigs, 2020). Aside from this, institutions should send guidelines and walkthroughs to teachers to enable them to adopt and implement online distance education practices. Another need observed is training in digital skills and competencies for staff and students. An understanding of licencing systems (Creative Commons or other open licences) and the use of personal data is another need. Finally, educational institutions are suggested to develop a Pedagogy of Care, developing a more robust system to follow-up with students more in need (dropouts, those without technological equipment). For K12 students, schools should collect and organise a range of learning materials created by teachers, to create an openly available, crowd-sourced learning ecology.
- For educators: Educators are suggested to form supportive and collaborative communities, where they can share their experiences and solutions.
- For learners/students: Students are suggested to develop their autonomy and improve their self-regulated learning skills.

Overall country-based evaluation

The lockdown due to the Covid-19 pandemic has raised awareness of the interest of digital tools and resources in maintaining and, sometimes, improving education. It is an opportunity to develop and extend those digital solutions, but also to innovate, including in the face to face classroom teaching or through the sending of printed open educational resources. We have to discover effective ways to benefit from educational technology in more effective and efficient ways, for the students and the staff.

Greece

Overall

The overall population of Greece is 10.5M, with 43.3% under 30 years of age (World Population Review (2020). Total Population by Country 2020). Education in Greece is governed by the MoE at all levels. The education sector consists of public and private education at K12 and university level. It is composed of three educational levels; primary education is six years (ages 6 to 12), followed by secondary education separated into two sub-stages (the compulsory Gymnasio, ages 12 to 15, and non-compulsory Lyceum, ages 15 to 18). The third level is higher education. There is a consistent policy to integrate information and communication technology (ICT) at all educational levels, which has been increased due to heightened availability of the internet, with 73% of country households having an internet connection in Greece, and a mobile penetration of 146% (Hootsuite, report 2019).

On March 10, 2020, with 89 confirmed cases and no deaths in the country, the Greek government decided to suspend the operation of educational institutions at all levels nation-wide. The decision to temporarily close educational institutions was prompted by the principle that large gatherings of people, especially in classrooms, constitutes a serious risk. The most immediate impact was the temporary cessation of face to face teaching, as it was a completely new situation and disrupted learning continuity.

Reflections from the educational landscape

Greece has the fourth-highest tertiary enrolment rate among OECD countries and has experienced an increase in tertiary education attainment over the last decade (OECD, 2019a). More specifically, it has the highest enrolment rates in bachelor's programmes of all OECD countries among 19-24 year-olds, and the second-highest rates among 25-28 year-olds (OECD, 2019a). From the beginning, institutional responses had covered different areas: health issues, adjustment of calendars, guaranteeing the continuity of teaching activities through distance education, as well as access to bibliographic and

technological resources. Regarding courses, Greek higher education institutions had the capacity and quickly corresponded to the new imperatives, especially through the e-courses already in place, but to a small scale. This said, the main challenges were to choose the right e-platforms, to quickly update the relevant technological infrastructure and mostly to train a percentage of professors in the new software. 96.35% of undergraduate courses were successfully able to continue through a combination of synchronous and asynchronous online education. The same applied to postgraduate courses that were successfully switched and offered through online education. Only 3.65% of courses were not realised due to the fact that there are scientific fields that require hands-on, lab-based practical experiences that online learning cannot support. E-learning infrastructure had to be updated in order to correspond to extraordinary demand. Professors and other faculty members used social media - mainly Facebook - as a means of direct and immediate communication for their courses. Facebook groups were created around courses and the experience was more than positive in regards to the engagement of students. For online classes, more than one app was used, including Big Blue Button, Zoom, Google Meet, and Skype for Business. In-person exams were reduced mainly for a small percentage of courses, while other forms of assessment/evaluation methods were introduced. These methods included more emphasis on assignments, projects and essays.

Given the new reality and the government's proactive, careful steps and measures to protect the learning community from undesirable health threats, K12 education was interrupted on March 10, 2020. The MoE started working on updating existing digital school repositories and the Greek School Network so that all learners and educators could have access to it and deliver online lessons, synchronous and asynchronous, as smoothly and seamlessly as possible. In an effort to keep students in touch with their schools and teachers, educators were struggling to reach students via email at the beginning, providing support, and educational materials. Nevertheless, emergency remote education cannot imitate face to face education, nor equate to online teaching. Although emergency remote education is a step, online pedagogical practices should be employed, ensuring quality in the delivery of materials and adaptable means of assessment. As Riggs (2020) notes, "[p]roviding access to content is a great first step, but access on its own does not make for a quality learning experience". There was a need for interaction; student-content, student-instructor, and student-student interaction.

On this premise, given the unprecedented situation in the educational landscape and educators' lack of readiness to efficiently respond to the new demands and learners' expectations, on March 18, 2020, a Facebook group of educators entitled “Distance Education” was created, with the intent to support each other and share their expertise and ongoing experiences. In less than a month, more than 24,000 educators asked for and were given access to this group, with remarkable outcomes. Education stakeholders, in response to the demands of emergency remote education, organized a 2-day online seminar with distance education experts, analyzing not only the importance of instructional and learning design, but the pedagogy in online education that should be taken into consideration. Good practices were presented and shared, and a marathon of developing online materials and modules, on a 24/7 basis, led to a quick response for a large number of students. Synchronous and asynchronous sessions started, with the use of all kinds of educational technologies to accommodate needs. As such, computer/internet-based, mobile phones and educational television - especially for primary level students - were all employed. Cisco Webex was the official platform used by the MoE for the synchronous sessions, providing digital security for children and teenagers, who used personal entrance codes. Learners, depending on their digital skills, responded to this call, mainly addressing their need to socialize and keep in touch with the learning community and their friends while in lockdown. Synchronous sessions proved to be of more success with large percentages of participation, reaching 70-80% of the school population, thus allowing for a Community of Inquiry to flourish.

Nevertheless, high school learners proved to have developed new digital skills in asynchronous learning environments, at their own pace and time, not previously practiced, on the grounds that they should respond to the demands of the new reality. To add to this, it was observed that online asynchronous learning boosted dyslexic, hesitant, and low face to face achievers' performance.

Digital divide and lack of equipment and accessibility in all households was a major inhibitor. Large families could not respond to their children's needs for personal equipment except for their mobile devices that proved to be a precious tool. Given that not all students could have access to sessions, the MoE decided that lessons would not include new materials but would instead be restricted to revision unless all students of a class could have access. To add to this, a considerable number of teachers, in an effort to provide their best, but lacking experience and pedagogical background in online distance

education, delivered lessons imitating face to face education, without chunking information into digestible sizes. As Hodges et al. (2020) posit, although "[m]oving instruction online can enable the flexibility of teaching and learning anywhere, anytime", it might not be as effective as expected, as the speed to this transition was "unprecedented and staggering". As such, some learners, especially teenagers, driven by their emotional turbulence and the fact that it was not obligatory to attend, or perhaps due to digital divide and disparities, did not participate in the sessions.

Lessons learned

For Greece, the decision for a general lockdown proved to be the right thing, as it kept the number of deaths and the number infected to low levels. The crisis was managed very well; the main challenge is the day after, especially on how to prepare the educational system to operate under this condition. Whilst access to the internet has increased in the past few years, there is a necessity to increase both the percentage of the population that has access to the internet, along with a similar increase in the quality (speed, stability, etc) of the system. It is a major issue that can be tackled along with other complementary initiatives, such as digital and media literacy to address issues of digital divide, accessibility, and social inequality.

Suggestions

Suggestions for policymakers: There is a necessity to further develop mechanisms to respond to crises that require emergency measures to that extent that we have witnessed with the pandemic. Covid-19 is a major opportunity to further develop and introduce the concept of E-learning to all levels of education. Pre- and in-service teacher training on online distance education should be part of the basic qualifications for educators of all levels. Besides, digital and media literacy training should be intensified as a way to equip the general population with competencies needed, in order to correspond to this new environment.

Suggestions for schools/universities: The resumption of face to face activities of “HEIs” should be seen as an opportunity to rethink and, to the extent possible, redesign teaching and learning processes, taking advantage of the lessons that the intensive use of technology may have necessitated, paying special attention to equity and inclusion. As such, blended learning practices should be promoted in mainstream education so as to encourage multiliteracies and all-inclusive educational practices. It is also vital that schools develop well-grounded online networks with all education stakeholders. Curricula should be enhanced to respond to emergency/regular online teaching.

Suggestions for educators: Design pedagogical measures to evaluate training and include in the curricula. Promote internal reflection on the necessity to integrate lessons learned from this extraordinary situation. In blended learning environments, educators should bear in mind the need to diminish transactional distance, especially for younger learners that cannot assume responsibility for their own learning. They rely on teacher and parental support and guidance. Synchronous sessions of emergency remote education work better, keeping young learners on track with clear instructions, avoiding procrastination and frustration. Alternative forms of assessment to address inclusive, quality educational practices along with flexibility on assignment due dates, to accommodate accessibility and connectivity issues, should be highly considered. Problem and inquiry-based learning (PBL) is recommended in order to enhance motivation and engagement that is required for all educational levels. Educators should develop online materials to promote quality, inclusive educational practices.

Suggestions for learners/students: Students have also had to make an effort to adapt to what for many of them were new formulas for teaching and learning. This effort should take a longer-term perspective since this will probably be a permanent element of higher and continuous education. There is also a need to specify a learning and working environment within the house/family context that is supportive and that takes into account the requirements of distance learning.

Overall country based evaluation

Covid-19 has presented a major global test for education systems across the world. In Greece, it worked as an accelerator in order to introduce e-Learning to a larger scale. In addition, measures, such as the introduction of mobile learning, challenged traditional formal education practices in an effort to adapt to this new reality. In order to evaluate the overall impact of online emergency remote education in Greece, we have to take into account the long-lasting economic crisis (8 years) that impacted education to a great extent. Greek society and institutions corresponded with great success, given that they were exiting from a major economic crisis. The overall response was positive; “HEIs” introduced distance

learning with success, while primary and secondary education adapted equally to the same situation, albeit with more difficulties. The main challenge is to evaluate the lessons learned at every level (teachers, students, infrastructures, etc.) since they constitute a major step for the future that requires deep consideration (effectiveness, structures, etc.). Educational institutions need to be adequately prepared and equipped to the new way of teaching and learning, as it has been proved that brick and mortar education is a practice of the past. This will involve securing adequate technology, media/digital literacy skills, and new pedagogies.

Republic of Ireland

Overview

Speaking from Washington DC on the morning of Thursday 12th March 2020 the Irish Taoiseach (Prime Minister), Leo Varadkar, announced that all schools and higher education campuses across Ireland were to close at 6:00 p.m. This news was not totally unexpected, but the short notice caught many people by surprise and resulted in a flurry of activity within and across Irish educational institutions. The campus and school lockdown quickly evolved to other sectors with the Government introducing new regulations requiring all bars, restaurants, and shops to close. These regulations included a requirement for social distancing and for people outside of core essential services to limit their movement to no more than 2km from their place of residence. This restriction was only eased on May 5th to a maximum travel distance of 5km for physical exercise. At the time writing, Ireland remains in a tight lockdown situation until current restrictions are reviewed on May 18, 2020. However, there is every indication that social distancing requirements will continue for some time and seriously impact the start of the new academic year.

- Ireland is a small country with a population of nearly 5M people.
- As of May 9th, 2020, Ireland has reported over 22,760 confirmed cases of Covid-19 with 1,446 deaths.
- The Irish community has so far responded well to closures, movement restrictions and the requirement for social distancing. There remains a strong sense of social cohesion and in many respects, the strong community values and resilient character of the Irish people are most apparent in times of adversity.

The composition of the education sector includes:

- 7 public universities, 12 technological institutes, 8 private colleges and 5 other higher education institutions.
- 233,973 higher education students - consisting of 107,883 in universities, 96,831 in technological institutes, 17,788 in private colleges and 11,471 studying in other institutions (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2020a).
- 17,521 higher education staff defined as being involved in teaching - consisting of 8,025 in universities, 6,824 in technological institutes, 1,370 in private colleges and 1,302 studying in other institutions (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2020a).
- 567,772 First Level K12 students with the majority (559,548) spread across 3,240 primary schools
- 362,899 Second Level K12 students with the majority (198,839) spread across 722 in secondary schools
- 37,341 First Level and 30,062 Second Level K12 teachers (Department of Education and Skills, 2019).

Reflections from the educational landscape

The following reflections have a strong higher education focus and insights and observations reported in this Irish case study are framed by the experiences of the team in the National Institute for Digital Learning (NIDL) at Dublin City University (DCU). Importantly, they tell only one version of the Irish story and for this reason, do not claim to be a definitive account of how Ireland as a Country has responded to the Covid-19 global pandemic.

DCU is a dual-mode institution with the majority of its 17,500 students studying on one of three physical campuses. However, DCU has more than 35-years experience in the provision of distance education. In 1982, the National Distance Education Centre was established at DCU and 31 years later in November 2013, the NIDL was launched to provide further leadership in new models of digital learning. In August 2014, *DCU Connected* [https://www.dcu.ie/connected] was launched as a major new initiative managed by the NIDL to promote online learning options for both Irish and international students living overseas. The term 'connected' has particular significance. At DCU the focus is not on an online delivery mode *per se,* but rather the nature of the learning experience -- that is, being connected wherever you study. Over the past 6 years, the NIDL has built a growing international reputation for research, leadership, and innovation through new digital models of education. Shortly before the Covid-19 global pandemic, in November 2019, the NIDL hosted the ICDE World Conference on Online Learning.

Given this background, DCU was well-positioned to respond to the health crisis. Our preparations in the NIDL for the prospect of restricted campus access began in earnest on March 8th, when we first produced a set of *Keep Teaching* guidelines for DCU staff. On March 10th, we produced a similar *Keep Learning* guide for DCU students (NIDL, 2020a). At the time, these initiatives were the first Covid-19 related guides produced by an Irish higher education institution (Brown, 2020a). Over the next few days, the NIDL team developed and facilitated a series of strategically targeted online professional development events for staff, including two workshops on "The ABC of Teaching Online" and several sessions on "Using Zoom for Teaching", which attracted over 250 participants. Notably, in February DCU had made a decision to replace Adobe Connect with Zoom and to purchase an institutional licence extending to all staff and students. As part of continuity planning in the week of March 8th, DCU also negotiated with Catalyst IT a greatly enhanced hosting service for our Moodle-based VLE.

On March 15th the NIDL launched the first version of an outward facing resource designed to support Irish educators moving to teaching online in a hurry. Over the next month our *Swiftly Moving to Teaching Online Resource Bank* (NIDL, 2020b) was updated on a daily basis and now contains a wealth of useful resources, including: quality checklists; tips for online teaching; suggestions for alternative assessments; student online learning guides; an archive and list of forthcoming online events, webinars and courses; links to emerging research reports on the educational response to the Covid-19 crisis; a collection of future-focused scenarios and think pieces on longer-term planning; a range of example continuity plans; and a selection of relevant blog posts.

On March 16th, the first day of the first week of campus and school closures, the NIDL hosted a European-wide emergency remote education webinar, in partnership with the European Association for Distance Teaching Universities (EADTU) and the European Distance and E-Learning Network (EDEN). The webinar involved a panel discussion involving two NIDL staff and a representative from each professional body. This early European initiative attracted over 200 participants.

Coincidently, a team in the NIDL was already scheduled to launch a free online course on Teaching Online as part of the #OpenTeach project (Farrell, et al., 2019). This course developed with funding from the National Forum for the Enhancement of Teaching and Learning in Higher Education began on March 23rd with over 450 participants. However, prior to the course starting in response to growing demand, the project team shared a number of video lessons from the key-face on relevant topics. The full suite of videos were added to the NIDL Resource Bank along with a number of other useful DCU specific resources on getting started with teaching online.

Also, on Monday, March 16th, we first engaged with FutureLearn about the development of a new free online course for educators affected by Covid-19 (Brown, Costello & Nic Giolla Mhichil, 2020). DCU has a global strategic partnership with FutureLearn and in February 2020 launched its first fully online credit-bearing micro-credential in the area of FinTech. After only three-days of a rapid design and development process, the course, *How to Teach Online: Providing Continuity for Students* was officially launched on Thursday, March 26th. In the first 24 hours, the FutureLearn course attracted over 2000 registrations from 125 countries and went on to record over 50,000 participants. Approximately 2,500 Irish teachers signed up for the course representing a diverse mix of sectors from early childhood education through to adult training. In keeping with FutureLearn's emphasis on social learning, the course was designed to share evidence-based, just-enough, just-in-time and just-in-case practical advice for educators new to teaching online. Three senior NIDL staff served as course mentors over the duration of the FutureLearn course, which began on March 23rd.

It is important to note that in planning these activities, in keeping with the 'connected' metaphor, an intentional decision was made to avoid, wherever possible, deficit language (e.g., remote teaching, teaching in isolation, emergency learning) as we did not want to add to the discourse and general perception amongst Irish educators, students, parents and industry stakeholders that online learning was inferior or second best to traditional on-campus instruction. That said, as the semester progressed at DCU and examples of practice were shared more widely across Ireland, it became apparent that this form of emergency remote education was not particularly well anchored in the principles of effective online distance education. This observation is evidenced by the rapid adoption of web conferencing platforms such as Zoom and Microsoft Teams where scheduled face-to-face classes were often simply replaced by synchronous online lectures. As further evidence of this claim, in the case of the DCU, for example, in the week of April 6th, 3667 online classes or meetings were scheduled in Zoom.

In response to strong reliance on synchronous delivery, and concerns about the disconnection noted above between the practice of emergency remote education and well-established theory and research on effective designs for online learning, the NIDL team launched a lunchtime series of online professional development workshops. These workshops, split between basic and more advanced sessions, were well attended with a balance of supply-driven and more demand-led sessions to address the specific needs of those involved in teaching. Another notable initiative for DCU staff was *Circle Online,* which fused the concept of meetups with the literature on peer mentoring circles to offer a weekly forum for informal conversations and sharing of experiences. Each circle, involving no more than 10 people, was facilitated by an academic with considerable online teaching experience, with the aim of embracing an ethos of informal professional learning by teachers for teachers.

Additionally, the NIDL team introduced a weekly Teaching@DCU Newsletter to help scaffold online teaching practices and offer a deeper glimpse into relevant theory and research. Each newsletter followed a standard template with the following sections: Opening Theme, Top Teaching Tip of the Week, What's Hot this Week, Spotlight on Assessment, Designs for Learning, Our DCU People and What's On. The first newsletter circulated on March 27th profiled, in particular, the fundamentals of teaching online by Tony Bates (2019) and the ABC Learning Design Framework (Young & Perović, 2018). The following five weekly issues contained useful tips, examples and resources relevant to the particular point in the teaching calendar. For instance, the second issue shared ideas and resources on how to better engage students through synchronous learning experiences and the third issue focused on the innovative use of discussion fora and other asynchronous forms of online teaching, with examples of case studies, scenarios and role-play. The next issue explored more innovative ways of using video and digital animations to promote teaching, cognitive and social presence anchored in the Community of Inquiry Framework. The final issue explored teaching evaluation and shared a new guide produced by the NIDL (2020c) on how to collect and interpret data in critically reflecting on the pivot to online learning. While it is difficult to judge whether this newsletter had any significant impact on the student online learning experience, responses to an evaluation survey circulated at the end of April were appreciative of the initiative and effort taken to support the DCU community through this weekly communication channel.

Each issue placed a strong emphasis on choosing alternative assessments and deliberately profiled wherever possible local Irish resources to enhance contextual relevance. For example, one issue shared a resource published by the National Forum for the Enhancement of Teaching and Learning in Higher Education (2020b) on designing online assessments that are accessible to, and inclusive of, all students. Another issue profiled a resource produced by the Irish Universities Association (IUA, 2020) to help educators minimise concerns of plagiarism and to enhance academic integrity in alternative assessments. The challenge of designing alternative assessments was a major focus at all Irish institutions after the initial getting online phase, as it was clear that traditional examinations would not be possible due to social distancing restrictions.

Despite DCU having already committed in January 2020 to undertaking a pilot of an online exam and proctoring service, the use of such a solution on an institution-wide scale was not given serious consideration. Instead, the focus was on alternative assessments and the development of a separate Moodle installation designed to manage a small number of time-dependent online exams and tests. A dedicated Exam Support Centre was launched on May 5th but there were few problems requiring urgent support during the online exam period, which ran until May 18th. At the time of writing most Irish institutions appear to have resolved the requirement for a limited number of online exams using existing in-house solutions. On a related note, final year Medicine students in Irish universities completed their

final examinations earlier in March and were offered by the Government an internship within the health system as part of the effort to battle the Covid-19 pandemic.

Another noteworthy IUA initiative, which was regularly featured in the Teachng@DCU Newsletter, was the launch of a Higher Education in Isolation Vlog series [https://edtl.blog/higher-education-in-isolation-vlog-series] where each week staff and students shared videos of their online teaching and learning experience. Starting in the week of March 16th and continuing for a total of 6 weeks, the collection of video case studies across Irish universities provide a real living account of the Covid-19 experience. This initiative was extended at the end of the Semester through a competition inviting staff and students to upload their own videos to Instagram using the #HEinIsolation hashtag.

Another national initiative supported by the NIDL was a unique *Gasta Goes Global* [http://gasta.me] online event involving seven well known international scholars, including Maha Bali, Tony Bates and Martin Weller. The aim was to create an engaging and lively atmosphere under the stewardship of the Gasta Master, Tom Farrelly, to come together to think about "What will (online) education look like?". Several hundred Irish participants joined the online session on the evening of April 14th in a spirit of fellowship, solidarity and a bit of light-heartedness.

In terms of other external activities, the NIDL team was active in the EDEN *Education in a Time of Pandemic* webinar series [http://www.eden-online.org/covid-webinar-series/]. For example, in April two NIDL staff contributed to the session on how to design and manage assessments for online learning. DCU also took a lead role in organising the MoodleMunch lunchtime webinar series which began in April running through to June 2020. Several blog posts were written sharing our lessons and wider reflections on the Covid-19 experience, including a piece on *The good, the bad and the ugly of teaching online* in ICDE's blog (Brown, Costello, & Nic Giolla Mhichil, 2020). At the end of April, the NIDL Director contributed as an invited speaker to the EADTU Summit on Digital Transformation and Innovation in Education (Brown, 2020b). On a related note, the NIDL is a partner with EADTU and five other European universities in the new *Making Blended Learning Work* MOOC on the FutureLearn platform, which started on May 11th. Two senior NIDL staff will facilitate the final week of the course which reflects on the future of the concept of blended education in a post-digital world.

Also, on the theme of MOOCs, the NIDL was successful in May 2020 in securing a special Covid-19 funding grant to develop and conduct research on a *Learning How to Learn Online* course that will also be delivered through FutureLearn. In addition to building the capacity of students to effectively learn online, the project aims to inform future decision-making, help the higher education sector harness the potential of online education, and provide improved online learning experiences for students. Another funded project under this special Covid-19 grant will investigate the challenge of teaching online to large groups. In a similar vein, a NIDL research team launched on May 11th a national and international survey investigating the affective responses of educators to the Covid-19 crisis. Notably, a member of this team recently completed a PhD at DCU investigating the role of emotion in online education (Beirne, 2020), and this new study builds on this timely and important gap in the literature.

At the K12 level, in March the Government funded Professional Development Service for Teachers (PDST) launched a new distance learning resource website [https://www.pdst.ie/DistanceLearning]. In addition, Scoilnet [https://www.scoilnet.ie], the official Department of Education and Skills portal for Irish K12 educators, with over 20,000 free online resources, was promoted as an excellent resource to support remote online teaching. In April, the publicly funded RTE television station, with support from Mary Immaculate College, introduced a Home School Hub where students could view, download and engage with a range of curriculum resources. Also in April, DCU which hosts the largest Institute of Education in Ireland, with around 4,000 teacher education students, launched a Facebook live series known as "From a Distance" to provide advice and guidance on the many ways and means to enable school-going children and teenagers to continue to learn and remain engaged during this challenging time.

It should also be noted that over this period numerous commercial EdTech suppliers made special offers to the K12 sector, although at this point it remains unclear how useful these opportunities were and how many schools took advantage of them. On a personal note, in the first month of the pivot to teaching online several emails would usually be received each day with some type of special offer. Notably, none of these offers was taken up by DCU. Arguably, the biggest challenge facing the K12 sector and the Government was what to do about examinations that normally contribute to the Leaving Certificate for

senior students. After considerable public debate, on May 8th the Government made a decision to replace final exams with a calculated grade system based on past performance.

Beyond the K12 and Higher Education sectors, the NIDL team is currently supporting the National Garda (Police) College to develop a series of rich media resources for online delivery. Under current Covid-19 restrictions, the Police too have a challenge of maintaining their normal programme of training and professional development. Therefore, DCU and the NIDL more specifically is pleased to be able to support the Garda College's move to a more fully online and blended delivery model, and in so doing make our contribution to the National response to the Covid-19 crisis.

In summary, the Irish response to emergency teaching online in the face of incredibly challenging circumstances has been remarkably positive and relatively successful. However, there remain challenges for international students and serious financial implications for Irish universities, in particular. Overall, the period from March 2020 to June 2020 can be described in three phases: (i) get online quickly, (ii) get organised to develop appropriate alternative assessments, and (iii) get thinking about future scenarios and next steps. The challenge right now is planning for the reopening of schools and campuses for the new academic and school year at the end of September 2020, but currently, the future remains uncertain. Most institutions are working on scenarios that continue to require full or partial online delivery from the start of the new academic year.

Lessons learned

The first lesson is that technology matters. If you do not have access to technology, then emergency remote education online is somewhat problematic. While at risk of sounding technocentric a related observation is that specific technology platforms for online learning also matter as the pedagogical affordances of some systems are not as easy or intuitive to use as others. This point was particularly apparent in the context of synchronous delivery for higher education where differences in the levels of integration and functional richness were evident across institutions. Irrespective of the maturity of institutional infrastructure for fully online teaching, access to technology to keep learning was also inhibited by differences in the quality of provision of Internet access across Ireland, with rural regions most affected. Coupled with differences in institutional capacity to respond to the Covid-19 crisis, the experience brought to the fore important structural inequities. This observation is triangulated by some of the findings of the *Irish National Digital Experience (INDEx) Survey,* which was implemented in the final quarter of 2019, with the results published in May 2020, where students at universities reported the highest ratings for their institution's overall digital provision (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2020a).

Secondly, institutional mission and organisational culture at the higher education level influenced both the capacity and nature of the response. Although based on largely anecdotal evidence, institutions such as DCU that had strategically invested over recent years in promoting new models of digital education, including MOOCs, appeared to more smoothly pivot to online education with less disruption to teaching and learning. This observation raises the concept of 'Digital Capital' where some institutions appeared to have more latent capacity or resilience to effectively respond to the crisis. Notably, the aforementioned *Irish National Digital Experience (INDEx) Survey* found that 70% of staff who teach in higher education had never taught in a live online environment (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2020a). Although speculative, in the case of DCU there is reason to believe that a long history of online distance education, aligned with an institutional mission which promotes flexible access to higher education as a core value, were contributing factors in the successful pivot to teaching online. This history and mission when combined with institutional leadership, organisational structures, a strong culture of learning innovation, and technical infrastructure all contributed to a high level of Digital Capital. Another important factor drawing on the theory of Connectivism that should not be underestimated in the development of this Digital Capital is the NIDL's active engagement in professional networks and strong partnerships with leading online providers such as FutureLearn and Arizona State University (ASU). In a similar vein, at a national level, there is evidence to suggest from the INDEx survey that previously funded Government projects and ongoing collaborative work '…also did much to underpin Ireland's robust response to the unexpected move to online learning' (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2020a, p.100).

A third lesson is that the language used to describe the response to a crisis matters. Although understandable given the circumstances, most of the discourse around the move to online teaching was

inherently framed by deficit language. As previously mentioned, terms such as 'remote learning', 'learning in isolation' and even the concept of 'social distancing' imply that physical proximity is crucial to good teaching and learning. Put another way, by default, campus-based learning is positioned as best and the 'gold standard' of education. This inherent assumption is not supported by the research literature and there is a risk that as the crisis evolves such deficit language will contribute to a backlash against Online Learning as people naively treat it as a single monolith delivery mode. As we know that good teaching and achievement of learning outcomes is not dependent on delivery mode, then if the Covid-19 experience is to have a positive legacy it will be important to differentiate so-called emergency remote education from the design of effective online education, informed by contemporary theory and research. A recent NIDL report which provides a synthesis of the literature makes the salient point that teaching online is different (Ní Shé et al., 2019).

Following on from this point, the fourth lesson is that emergency remote education has resulted in greater reliance on synchronous forms of delivery, which has arguably done a disservice to both the flexibility and pedagogical affordances of asynchronous models of online education. Indeed, metaphorically speaking there is a danger this approach reinforces old 19th Century models of teaching on 21st Century networks by delivering large chunks of information down a digital diameter pipe to relatively passive learners (Brown, Costello & Nic Giolla Mhichil). Looking to the future, if we are to harness the benefits of the unprecedented onlining of education in response to Covid-19, then we need to address the disconnect between research, theory and practice. The lesson is that the new generation of online educators, and those in roles designed to support digital forms of teaching, still have much to gain from revisiting or engaging with for the first time well-established theories, such as 'Transactional Distance', 'Equivalency Interactions Theorem' and the 'Community of Inquiry Framework'.

Finally, the closure of schools and campuses required considerable time to be devoted to designing alternative assessments. These discussions helped to give rise to important guiding principles and in some cases nudged those who teach to be more creative and innovative in their approaches to assessment by leveraging the affordances of new digital technology. However, the need to replace traditional exams also illustrated tensions between how educators, policymakers, politicians and the wider public view the role and purpose of Assessment. These tensions, coupled with the political nature of Assessment, were particularly apparent in discussions at the K12 level concerning the Leaving Certificate. At the higher education level, the focus on alternative online assessments also raised understandable concerns about plagiarism, academic integrity and contract cheating. Based on questions raised during webinars and the types of comments posted through social media, not all of these concerns were well anchored in the research literature. More importantly, to date, there has been little or no wider public debate about the validity and longer-term status of the exam based on the Covid-19 response. It remains to be seen whether Assessment will return after Covid-19 to more traditional non-digital practices. Looking to the future, the question is whether the Irish onlining experience will help to fundamentally disrupt traditional types of assessment and even kill off the hand-written exam paper.

Suggestions

In Ireland, the story of our response to Covid-19 is still being written and therefore the rapidly evolving nature of the crisis requires a level of caution in making specific suggestions for the future. That said, one of the important questions for policymakers is where does online education now fit in the Irish education system? The current funding model for higher education privileges on-campus instruction with only limited financial support for online courses and programmes. Beyond Covid-19, it is time to review this funding model as online education is now firmly established in the global education landscape and provides an opportunity for Ireland to develop more digitally capable, work-ready graduates and life-long learners for a rapidly changing future. It also offers a unique chance to take the best of Ireland to the world through the strategic delivery of high-quality online courses and programmes.

At the institutional level, the post-Covid-19 era provides a chance for higher education to reimagine traditional delivery models. It is time to talk about deeper and more disruptive models of blended learning when students return to campus, rather than merely tweaking instruction through new digital technologies with limited transformative advantage. Such future-focused discussions should seriously engage in the uncomfortable reality that even in the best universities many on-campus students choose not to attend lectures; and too often we are still guilty of supporting assessment practices which value the training of memories rather than educating of minds. It follows that institutions serious about curriculum reimagination, enabled by a strong innovation culture and high level of Digital Capital, need to address important structural barriers - for example, most teaching workload models still privilege the

number of face-to-face contact hours. At the higher education level, what is valued, measured and rewarded in promotion criteria also needs to be reconsidered as part of a wider conversation about the changing nature of academic work and scholarship in the rapidly evolving Digital Society?

There are likely to be many takeaways for educators arising from their onlining experience and hopefully, they will be given serious consideration when the time is right for deeper reflections. This comment is respectful of the affective dimensions of the Covid-19 experience as already there appears to be a greater appreciation of the role emotion plays in teaching, learning and assessment. But when educators come to critically reflect on their Covid-19 experience they must have the time, willingness, and commitment to take actions that help to implement key lessons. Therefore, the challenge to individual educators at a basic level is to incorporate at least one new activity, technique or learning innovation from their teaching online experience into their next course offering. The message is continue to experiment as now is not the time for educators to simply return to what they have always known and done. Students will be expecting more! This last point is evidenced by the findings of the *National Digital Experience (INDEx) Survey* where pre-Covid-19 48% of students reported they would like digital technologies to be used more in their courses (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2020a).

Speaking of students, digital education is arguably the new normal and in the immediate future, we need to do more to support their capacity to effectively learn how to learn online. The *National Digital Experience (INDEx) Survey* reports that 42% of students did not receive guidance on what digital skills they need for their course (National Forum for the Enhancement of Teaching and Learning in Higher Education Forum, 2020a), and this finding was before the Irish onlining experience. Even more so in the post-Covid-19 world, the ability to be an effective online learner is an important skill for lifelong learning and career development. Accordingly, Irish educators will be doing a great disservice to future campus-based students if their programme of study does not seamlessly fuse or weave together online and off-line learning experiences in formal, non-formal and informal contexts. There are real opportunities to quickly enrich and broaden the learning experience and development of important transversal skills for the Digital Society by harnessing the potential of MOOCs and through the strategic development of new micro-credentialing initiatives.

Overall country-based evaluation

The Covid-19 crisis has been hugely disruptive to the Irish education sector. Despite the disruption, the National response has revealed a great deal of character, commitment, and resilience from educators to keep teaching, as well as willingness and perseverance on the part of students to keep learning. The big question is whether this disruption will have a positive legacy with online education contributing to fundamental transformations to teaching, learning and assessment. Will Ireland have the courage to go beyond taming digital technology through relatively conventional practices to more fully exploiting the disruptive potential of online education to help build human capital, increase our relatively low rate of participation in lifelong learning and realise the vision of the National Skills Strategy 2025 (Department of Education and Skills, 2016) to be renowned at home, and aboard, as a place where the talent of our people thrives?

On a more immediate horizon, Ireland is now entering a new phase of the Covid-19 response as the summer break approaches and each university is planning for the remainder of the year, and beyond. Similar planning is underway in other institutions around Ireland and by the Government for schools, but it is difficult to speculate on the extent of growth in Digital Capital and level of preparedness for what remains an uncertain future. However, in the case of DCU, part of our future planning involves strategic discussions of a more proactive nature looking at scenarios and opportunities beyond the current crisis. The aim from the beginning of the new academic year is to go further than the online experience we provided students in our immediate response to Covid-19. DCU is seeking to leverage key lessons from the great onlining of our curriculum and aims to expand the conception of the DCU connected learner - irrespective of how we teach and what and where students learn.

Romania

Overview

From the outset of the Covid-19 pandemic, the government and educational response in Romania was remarkable. The mood of the populace was cautiously optimistic and positive given the daily privations

of lockdown and restricted mobility. Like most countries, we know staying home protects our health, but it doesn't mean we have to like it. In sum, this pandemic has brought people together 'impreună' which reflects the importance of family and solidarity in Romanian culture. The population of Romania is about 19.4M people (World Population Review, 2020) with approximately 2.8M enrolled in primary, middle and secondary schools. University enrollment is around 500,000 students with 400,000 undergraduates and around 100,000 graduate and post-graduate students.

The first case of Covid-19 was February 26, 2020, and from then until the present, the government, healthcare agencies and educational organisations have progressively placed the safety of citizens and students first and foremost. In early March all arrivals entering Romania from Italy and China were immediately quarantined for two weeks. Public meetings and flights were restricted, and even some border crossings closed. In every instance, the government was proactive rather than reactive and was ahead of the game in protecting the populace. By mid-March, schools and universities had entered lockdown status by Presidential decree, with curfews imposed, military patrols and massive preventive resources provided to all citizens. Romania had 12, 567 confirmed cases, 7,515 active, and 726 deaths as of May 1, 2020.

Reflections from the educational landscape

The MofE decisions on school closures were aligned with the progressive measures taken by the national government and translated to local jurisdictions. In mid-March 2020, all schools and universities were closed in lockdown status and students stayed home. The government had instituted *Teleșcoala – a national TV program offered Monday-Friday with instruction in math, Romanian language, sociology, history, and other subjects for high school level students.*

The ICT digital culture amongst Romanian middle and high school students was the greatest challenge for the Romanian MofE. First, there were no previous regulations for implementing distance learning programs at this level. Secondly, many teachers were completely unprepared to teach online. Besides, the majority of pre-university students have limited access to laptops or computers at home and yet many had mobile phone devices. As research has shown, it is very difficult to be a successful online student with only a mobile phone connected to the Internet without good curricular design and highly trained teachers. Furthermore, the students were also unprepared and inexperienced in relation to online learning yet capable of using different digital tools.

Indeed, there were many good practices and success stories in Romania from teachers and students coming together to continue their roles in an online environment during the crisis. What was the secret of these success stories? Perhaps leadership that inspires teachers and support staff to collaborate in designing and achieving clear objectives; and the change in school culture enabling staff to lead change and innovation. Romanian openness to communicate and collaborate by using any available tools will be important to future expansion with digital teaching.

The Romanian MofE had created and presented to schools the National Plan of Educational Intervention for the school closure and lockdown period which will likely be extended until the end of the school year. This plan covered the minimum requirements necessary for implementing distance learning for secondary schools. This mode of delivery was entirely new for most K12 schools. Secondly, the plan specifies the needs and purposes for implementation and some tools for evaluating students` needs in relation to access to digital devices. Furthermore, the plan encourages the collaboration between stakeholders locally to provide the schools and their students with devices needed in order to continue learning from home. In addition, the plan described regulations and recommendations for implementing distance learning from home for both students and teachers focusing on promoting good practices among schools in Romania.

Most schools had at least the minimum technology resources such as desktop computer labs, web pages, and Internet access. The pandemic, however, had accentuated that online distance education was still very much in its infancy in Romania. Students were capable of learning via digital technology, but many teachers have not received the necessary training and there remained a preference for face to face teaching to remain the primary delivery mode in K12 and universities across Romania.

The primary response to the pandemic by middle and high school leaders and teachers was to scale-up the use of Zoom for teachers to continue teaching at home or to activate the Google Suite for education which was available for free across the country due to the agreement signed in 2014 between

Google and the MofE. Students and teachers were using their phones for social connections and to supplement Zoom instruction or Google Meet sessions. This was similar to many other countries where schools were simply caught unprepared for the impacts of the pandemic. The majority response was synchronous, although many teachers were using a blended approach for students to work asynchronously at home and then return to the Zoom classroom prepared for class lessons.

Teachers and students alike were very frustrated or exposed to online security issues. Teaching and learning online takes extensive training, practice, and innovation by teachers and students alike. Teachers across the globe with little or no experience teaching online have been asked to do this in a few weeks. A common response from teachers was we were hit with too much, too fast, and with no time for training to do this well. Make no mistake, there was more poor online instruction going on during the pandemic in most countries than most leaders were willing to admit. Moreover, policies were needed at the school level. At the same time, this crisis served as a catalyst to embrace these changes and increase the awareness in adapting digital teaching to 21st century needs in Romanian schools and universities. The priority focus from the MofE was to ensure that 8th and 12th grade students who were required to take pre-high school entry exams and the pre-exam *Baccalaureate* for entry to university respectively, must be given priority.

At the university level, some universities were offering online courses and programmes in specific disciplines prior to the pandemic and lockdown. In general, universities were facing similar challenges as K12 schools – teachers and students were unprepared to teach and learn online. Most universities were using a Zoom or similar technologies to continue teaching until the lockdown ended, however, some universities were already using learning management systems (LMS) prior to the crisis.

Lessons learned

Romania did an admirable job gearing-up and using online digital tools to continue teaching students during this pandemic. Conversely, it was fair to suggest online learning, one delivery mode of distance education, was not a priority and consequently funding for school/university infrastructure has a limited history. The Covid-19 pandemic highlighted the need for digital online training for teachers, administrators, parents and students across Romania.

Suggestions

Policymakers: Leverage funding for middle schools, high schools and universities to build their online learning programmes (training, infrastructure, hardware, software, etc.). A national mandate for schools and universities to promote the use of Open Educational Resources (OER) in designing all courses and programmes.

Schools: Focus on middle schools and high schools. Do not develop major online programmes for K6 except as supplemental gaming and fun activities. These students are still in their child development, maturation, and intellectual development and this needs to be respected and nurtured. The lesson here with digital technology was just because you can, doesn't mean you should. Eight-year-old kids don't need their childhood consumed by digital technologies.

Universities: Ensure that university faculty member promotion and tenure criteria recognise online teaching and related workload activities (design, assessment, advising, etc.). Transition your best and most reputable as well as most competitive programmes online first. Create a Consortium of Romanian universities to deliver online programmes for Romania students first. Online faculty teams should be encouraged and supported.
Teachers: Relax, you don't have to be an online maestro in two weeks. There are many free online training programs. The reality is to be a good online teacher requires serious time commitment and creativity.

Students: Resources are tight but make every effort before you buy that expensive iPhone to buy a laptop for home use. Give online learning a chance – don't go to a couple of sessions and walk away. Finish that first course and you will begin to see the advantages it can bring to you and for working with your friends.

Overall country-based evaluation

In summary, Romania responded well and was improving steadily despite serious time and resource constraints. Indeed, the fact is that online delivery was the only viable response by most countries to

lockdowns and school closures to continue teaching and learning. The obvious problem is the reality that you cannot do online teaching well in three weeks. When this pandemic is under control the data will likely show that a lot of very poor instruction occurred online by most new K12 providers and most universities. And, comparing online scale-up in developed versus developing countries will be flawed at best.

Romania has a bright future using digital technologies to deploy online learning and other modalities of distance education for teaching and learning. It will, however, require a greater focus, investment of resources from the national government and expanded collaboration between universities and corporations, government, and sister universities. The future is about leadership, not simply technology.

Spain

Overview

In Spain, a state of emergency was declared officially on March 13, 2020. Just before that time, the public opinion had been led by the director of the Coordination Center for Health Alerts and Emergencies of the Ministry of Health, Fernando Simón's (2020) official declaration that the epidemic was under control. The Spanish situation is complex due to the geopolitical and cultural diversity, with several recent tensions. Even prior to the declaration of a state of alarm and the government imposition of the lockdown, in this fragmented panorama, there were already debates on limitations of citizens. An illustrative episode occurred in January 2020, when the Mobile World Congress which was to be held in Barcelona was suspended due to the increasing concern of the coronavirus spreading in Asia. The public opinion at the time regarding the suspension conveyed an expression of an exaggerated reaction and concerns connected to the economic impact of such a decision.

The Public grew more and more concerned due to the Italian situation and particularly with the arrival of initial cases (e.g., in February 25, 2020, in Catalonia from Lombardy, the most affected region in Italy; La Vanguardia, 2020). The real drama was understood when cases exploded by March, firstly at Madrid and then in Barcelona, the biggest cities in terms of population and highly relevant in terms of economic activity. The country moved from a rather relaxed situation, with some communities under social isolation where the Italian case was followed, rather sceptically to declaring a state of alarm jointly with a complete lockdown. In spite of the declaration by the authorities of "having a great health system in Spain to face the pandemic", the public was of the opinion that the Spanish government was unprepared (for example, over 209991 voting over the government and health system preparedness to face the pandemic, 23,19% replied YES and 76,81, NO -source: La Vanguardia).

The lockdown was as strict as in Italy, preventing people from going out for exercise or simply walking. The recommendations were to stay at home (*#quedateencasa, #YoMeQuedoEnCasa*) and go out only to buy groceries or medicines. The current situation is being traced continuously at the Official Ministry of Health page (n.d.) devoted to the pandemic. By the time of this report, Spain is amongst the most hit European countries, with 220.325 confirmed cases, 25857 deaths, and 126002 recovered patients. Overall, the Spanish autonomies initially cooperated, and the citizens accepted the national rules. Only recently, with the measures from April 28 to ease the lockdown over families with children under 14, and on May 2nd over adults, the regional autonomies have started to request more powers to control the regional situations to progressive transition to what has been called the "new normal". Indeed, in this new normality social distance is expected to be achieved and practised by the citizens in daily life. This is a behavioural approach which challenges very much the social fabric in Spain, where intense cultural activity, leisure and tourism requires social contact.

According to the World Population Review, the country has a population of 47M people. Within the education system, the MoE statistics section reports 9.2M students in the compulsory schooling system and 1.5M students in Higher Education. The country is comprised of several diverse autonomous communities (17 in total), with some regions having large urban agglomerations (e.g Madrid with 3.2M and Barcelona with 1.6M) with increasing immigration; and distant rural regions like some areas in Extremadura, as well as populations in isles (like Balearic or Canary islands) or outside Europe (like Ceuta and Melilla). This diversity encompasses extremely complex coordination of government decisions relating to the education system and the type of support to be given.

As a result of the state of alarm and the lockdown, the schooling system and Higher Education immediately announced the interruption of face to face activities on March 11 firstly in Madrid, the most affected zone, and progressively to the other Spanish autonomies. The evolution of the situation was depicted through the MoE Covid-19's official page.

It was decided that *"During the suspension period, educational activities will be maintained at through remote and "online" modalities, whenever possible"* (Real Decree 463/2020, art. 9). In this initial phase, most primary and secondary schools decided independently whether or not to apply emergency remote education. This was also the case of the universities, which mostly followed institutional policies with approaches with alleged convergence. Such an approach however generated initial confusion and dispersion of efforts since in most cases educational communities waited until "definitive instructions" were considered.

This initial period of impact was followed, by the end of the fifteen days and the beginning of April a period of increasing awareness grew that the situation was going to take longer than expected. Throughout April, several initiatives started to provide support to K12 education and Higher Education, showing the system's resilience over the basis of consolidated institutional capacity. Indeed, Spanish international networks, particularly with Latin America but also with other European networks proved to be extremely active in dealing with solutions and resources' sharing at all levels of the education system. More recently, with the beginning to transit towards the so-called new normal, the discussion has moved to a sort of the third phase, where academics, experts and policymakers are trying to envision how education institutions will reshape their practices and organization in the upcoming school/academic year in accordance with the social distancing requirements. This new phase, which along May has already produced some important decisions like social distancing practices at school and the university, is characterized by the idea of transition to blended learning with onsite tutorship for those students struggling at home.

Reflections from the educational landscape

As expressed in the prior section, three phases could be considered in the Spanish response to the Covid-19 in relation to the education system. While the first phase encompassed teachers' perplexity and to some extent lack of response, the second phase was extremely productive and led to a number of valuable and creative initiatives.

As for the schooling system, the National Institute of Educational Technologies and for Teachers' Professional Development (INTEF) increased its presence with a huge amount of Open educational resources,, training for teachers in terms of self-paced professional learning resources as well as resources to learn not only through technologies but also on and about emergent technologies. Moreover, the INTEF communication strategy progressively led to cover issues raised by the educational community, particularly the needs of small children in the K12 system in technology-mediated learning; parents and families support to manage homeschooling; and how to address evaluation in a situation of emergency remote education. Indeed, these three topics pervaded across social networks and teachers' blogs. While initial concerns centered on the way the schools could re-organize time and the necessary resources to learn at distance, this situation moved quickly to face the problems raised by vulnerable students, learning at home, exposing the youngest to the screen, and learning assessment particularly for the students passing from one to the next level in the schooling system.

Other educational stakeholders, particularly those in informal professional networks consisting of academics from pedagogy and educational technologies moved quickly to open the debate over the above-mentioned topics. Namely, as early as March 16, the research group Edul@b from the Open University of Catalonia circulated a decalogue for "unexpected online teaching" (Edul@b Research Group, 2020a); followed by a series of Open Webinars (in Streaming on Youtube) started on April 8, 2020, supporting several dimensions of emergency remote education (Edul@b Research Group, 2020b). In several universities, education students and those from other disciplines generated projects to volunteer in providing support to homeschooling. Examples of this solidarity activism are the Polytechnic University of Valencia with the project "University against the Pandemia"; the Complutense University of Madrid with the project of educational volunteering; the European University and Autonomous University of Madrid, the "Solidarity Pedagogues" webpage to provide support to families relating the stress of homeschooling by the UNED University. As for professional networks, professional publishers of resources for the school organized quickly and efficiently collections of resources (like the

case of Educación 3.0 (n.d) or SantillanaLab (n.d.), a collaboration between Spain and Latin America). Additionally, some schools self-organized and disseminated original approaches to re-engineer school practices and provide support to children, youth and families at risk, like the case of Vigo (Aragón Government Page, n.d.). Beyond these types of initiatives, many creative teachers shared through blogs and other social networks their approaches and resources, like the case of a teacher over primary education and resilience (Ramiro Solanz, n.d.) or other two teachers providing resources to support families (CHildMindMinute, n.d.). All this fervent activity can be considered examples of active collectives and networked professionalism in Spain. However, in spite of this rapid and creative response, digital competence could not be said to be homogeneously distributed amongst school teachers (Medina Bravo, 2018) and adults in families (Peñalva-Vélez et al, 2018).

As for the official response, the MoE created a webpage (Destacados/Highlights) with a number of measures and connected resources relating to critical topics including: homeschooling, children support with technologies and assessment and evaluation. It is of crucial importance to highlight the organization of a TV alternative system to online education as an emergency remote education approach. In this regard, as in other countries, the Spanish system acknowledged the difficulties experienced by adults with low digital competences and instructions as well as the problem of Internet connection and technological infrastructures as issues at the time of implementing online education. The programme “Aprendemos en Casa” (MoE, n.d.), consists of five hours a day, in collaboration with Radio Televisión Española (RTVE), of educational content aimed at students from 6 to 16 years old. In this same vein, the government distributed 20,000 lines of high-capacity data (40Gb per month) and licensed tools to facilitate collaboration between teachers and students aiming at creating and working with virtual classrooms. Support was also offered to teachers for the use of the mentioned technological platform. These resources were destined to students of Baccalaureate and Vocational Training, coming from families in a situation of greater social vulnerability.

In this regard, a specific concern to which the MoE had to solve was assessment and evaluation. Apart of the many initiatives taken by the schools to pass from summative assessment to more formative and project-based assessment, on April 22, 2020, the MoE determined the characteristics, design and content of the evaluation of Baccalaureate for access to the University for the 2019-2020 academic year (BOE - Official Bulletin of the Spanish State, 2020). Guidelines were agreed for the elaboration of the tests, with the aim of guaranteeing equity in university access for all students, regardless of the circumstances in which they may have had relating their access to teaching and learning from the announcement of the alarm state. Soon after, on April 24, 2020, the Ministry published a document with guidelines for all levels of the education system, emphasising the need to generate evaluation criteria which should be diagnostic and formative, allowing for the necessary adaptations of the educational programs for the following academic year 2020-2021. This approach should be embraced to incorporate those objectives and contents that, due to the special circumstances of the third quarter, could not be addressed.

At Higher Education level, by the end of March two relevant fully online universities (UNED and UOC), also with proven experience in delivering MOOCs, organized a webpage to share their knowledge and resources Conectad@s: La Universidad en Casa (*The university at Home*). The web portal included an extensive range of guidance and training resources for academic teachers on online training methodology, useful for the design and development of non-contact courses. The portal offered a wide repertoire of digital materials and open content from different areas of knowledge. It provided support to the development of educational resources in Higher education, methodological guidance, technological platforms and software, as well as psychological counselling recommendations. Besides, the ministry, in collaboration with CRUE (Conference of Spanish Universities), UNED and the UOC, created a virtual community to provide technical and pedagogical support to HEI’s management along decision-taking. Indeed, the CRUE organized working groups on academic development, research, evaluation and digital teaching. These groups were created jointly with different government institutions to seek concrete solutions to the problems that the pandemic is generating on all fronts.

A rapid visit to the websites of the top-ten Spanish universities (according to the Academic World Ranking Universities) undertaken for this report highlighted two types of concern: Firstly, faculty development and support to deliver emergency remote education; secondly, assessment and evaluation under the exceptional situation, including thesis dissertation through videoconference; thirdly students’ counselling and psychological support. In addition, at least six of these web portals shown also how the universities were collaborating in research and innovation in the biomedical field (epidemiology, vaccine

development, genetics, infectiology); informatics (connected to AI developments); architecture (designing new spaces) and social research (economics, social and psychological impact). This activity highlighted the proactive approach within the national and international R&I system by Spanish universities, connected (as expressed in the prior paragraph) both providing support to the educational system and the society, as well as in basic and applied research.

Finally, given the internationalization of the Spanish HEIs particularly through the Erasmus Programme and the networks of cooperation with Latin America, measures to monitor the situation of people participating in programs abroad and in Spain were considered. However, these measures regarded mostly nationals abroad, rather than a policy to analyse the way incoming students and visiting professors could be considered. In fact, CRUE and the Ministries of Foreign Affairs and Universities created a working group to monitor and improve the situation of thousands of Spanish students currently blocked abroad. CRUE-Internationalization and the Spanish Service for the Internationalization of Education (SEPIE) launched a survey to find out the needs of people who participate in programs abroad. Of the more than 13,000 respondents, more than a thousand expressed their willingness to return to Spain, almost 200 of them from Italy. As a result, the government has organized repatriation.

Lessons learned

As reflected in the previous section, it can be said that there were organised efforts towards the initial impact of the pandemic, however, the disparities in the Spanish social and cultural capital generated different levels of response. Universities with proven leadership at the international level and regions had a high concentration of activities. These hubs of excellence showed creativity, innovation, and rapid response, against some areas of the country that might be blocked or with little resources to respond to the crisis. However, at the national level, the effort was to coordinate and provide support to generate equity and access at all levels, both at the level of intellectual resources as well as to the level of infrastructures and technological support. Moreover, a strong public system, including private institutions that receive public support ("Escuelas Concertadas" -school level- and private universities receiving public fundings) encompass a situation where the financial management of institutions and the students' economic situation were not an evident concern. However, students' struggling and at risk of dropout were an issue for the Spanish education system (which is one of the EU countries with highest levels of dropouts, with 17.3% from 18 to 24 years old, according to the Eurostat 2020). As a result, and as it can be expected for most countries in this situation, the Covid-19 could actually increase and exacerbate prior inequalities.

As for the response to the pandemic, It must be said that the initial phase of uncertainty and dominance of scepticism in public opinion delayed the coordination of a more structured and organized response. It is clear that there is capacity in Spain to deal with emergency remote education by many educational centers and universities. However, the other side of the coin might be random practices. Notwithstanding, acknowledged problems in teachers and faculty's digital competence would prevent the effective usage of the existing and cited centralised resources both for immediate application and for professional development. In fact, although technology is a privileged place among current educational policies, recent studies in Spain, such as those carried out by Rodríguez et al. (2018; 2019) and Fernández and Rodríguez (2017) show that a relevant number of teachers do not possess the digital skills required to carry out technology-enhanced teaching and learning. As a matter of fact, poor digital competence has a direct consequence of anxiety, stress and bad organization when interacting with techno-pedagogical resources and innovative tools (Cela et al., 2017). Reluctance to commit to pedagogical transformation has been also noticed in Higher Education (Sorroza et al., 2018).

The personal experience of the author of Spanish case, in relation with the engagement in European and national projects supporting teachers and faculty adoption of advanced forms of online learning (like learning analytics and data literacy), is that beyond the use of technologies, pedagogy and organization are frequently overlooked. Covid-19 has required a rapid response and the re-engineering of organization and practices. Initial responses adopted videoconferencing systems to reproduce existing school and university teaching practices. Technological infrastructures (namely, access to solid video conferencing systems) were not an issue in at least 20 cases in contact with the author. However, this initial period was followed by fatigue, stress by both teachers and students and awareness on the need of reorganizing time, content and methods. Overall, the public debate is starting to go in the direction of rethinking school in the "intermittence between presence and distance teaching" both at school and the university as reported by Albert Sangrà, director of the UNESCO Chair in Education and Technology for Social Change (Sangrà, 2020).

One issue is the role played by Open Education in Spain in regard to Covid-19. As expressed by Santos-Hermosa (2018) for the Open Knowledge Foundation, the most prominent national policy for the school system was the Plan de Cultura Digital en la Escuela (Plan Digital Culture for the School, Educalab Blog, 2013), including an OER repository and open source tools. As for higher education, MOOCs are relevant particularly due to the extensive Spanish speaking community, but also Open Access approaches and University digital repositories ended up in consolidating practices of Open Educational Resources. As a result, there is potential for faculty and students as well as for school teachers to re-use OER as a strategy to implement emergency remote education. However, the Open Science approach is less disseminated and in spite of emerging institutional groups, there are no clear policies supporting academic promotion and recognition for Open Science and Open Data practices. This might encompass the lack of advanced resources for documenting the Covid-19 situation in educational and social research, which could encompass guidance for action-taking.

In any case, the fact that open learning plays a crucial role was demonstrated by the webinar series into which the author was engaged: by the time of this report, the UOC webinar series aforementioned (started on April 8, 2020), with ten webinars implemented has been followed by average participation of 600 people per webinar (streamed on Youtube) coming from the Spanish speaking community. The total number of participants who watched these webinars was around 80000 after 2 weeks of its publication. This clearly shows that (a) there is a need for training and support across teachers' professional communities and (b) Spain can catalyse relevant attention relating its educational practices and innovation across all levels of the education system.

Suggestions

Having reviewed the situation and overall considerations over the evolution of practices and approaches within the Spanish education system, the aim of this section is to provide suggestions for policymakers, schools/universities, educators, and lastly for learners/students.

As for the policymakers, public education and overall public funding of education has proven its effectiveness in maintaining a certain balance of coverage and approaches. Whereas as expressed the Spanish situation is dynamic, complex in terms of public-private collaboration and of cultural contexts, the public funding aimed at easing the stress and suffering from the affected collectives, particularly families, children, and youngsters. In Spain, there is a consolidated practice of teachers' professional development and also faculty development. This approach has to be increasingly and coherently implemented across the country. Faculty development for the adoption of technologies is crucial, for this last collective is less convinced over the relevance of introducing advanced technology-enhanced methods. However, policymakers should also consider that professional development for the adoption of technologies appears to be more effective when implemented within "ecologies of learning", namely, the specific resources, activities and relationships cultivated by local schools/ and university departments or research groups (Romeu-Fontanillas, Guitert-Catasús, Raffaghelli, & Sangrà, 2020). As a result, technical supporting staff and project-based fundings would be of crucial importance at the time of stimulating effective professional development models both at school and the university. Finally, re-engineering education institution spaces, time and organization will be an issue in transitioning to a new situation, where the Covid-19 is just a fact triggering a change that has been requested for a long time by pedagogists. Less time at school and more time at home, but also in community spaces would be an option. This change will have to be considered along with labour reforms (to allow adults to spend more time at home together with children) as well as in grassroot organizations (with new roles emerging, like community librarians, social educators and so on) supporting children in distance education spaces outside the school. Another point will be to support adults' education as an accompanying measure: adults' low instruction and scarce digital competence are an issue hindering equity, for children have fewer opportunities to receive quality support from adults in homeschooling activities. As for the university level, more tutoring and counselling roles should be envisaged in the future.

Finally, a crucial need is to provide support and programmatic guidance to implement research projects connected to the identification of best practices in dealing with school and universities organization (including support to adults education, collaboration with community organizations and so on) on social distance measures; the impact of technology-enhanced learning on equity, access, teaching and learning effectiveness.

When we look at the schools/universities, the above consideration to new forms of organization of time, space and relationships are to be reproposed. Education institutions should also reconsider the intensity in the curriculum, cognitive overload and ergonomy in the “new normal”. Indeed, if social distance will have to continue, it is extremely important to decelerate. Teachers and students are becoming increasingly exasperated by inadequate conditions for teaching and learning, but this situation is also the resultant of the lack of interdisciplinary approaches. Less sciolistic and didactic teaching and more activities focused on deep emotional engagement and participation are necessary not only now, but particularly in the future. This request is not new but nowadays it has become urgent.

Besides, the idea of a teacher as a “solo player” within the classroom needs to be overcome. Teaching in the new normal will require enormous efforts to prepare virtual classrooms and select/produce digital resources and activities. Under these conditions, the universities are increasingly hiring learning technologists and technical staff supporting faculty; but also, at school these new roles will have to be considered carefully. Overall, less fragmentation across disciplinary fields and collaboration in teams will lead to project-based learning, active and authentic tasks, and students-generated content as approaches.

Within this context, educators will have to face their tasks with flexibility and attention to professional learning. However, also mental health and wellbeing will be an important issue that school leaders and academic management will have to consider carefully in order to provide support. In this sense, taking care of the workforce and considering flexible work schedules and time for personal life will be of utmost importance. Particularly, gender issues will have to be detected and dealt with. Keeping tasks simple will promote equity and a sense of joy for passionate teachers. Moreover, the teacher will need to collaborate with the students and above all with families (in the case of young children) to implement feasible schedules, open to personalisation.

Last, but not least, learners/students which are the most flexible, are advised to participate and engage with the teachers in building a learning community. They will be invited to understand learning as a personal effort, as a lifelong pathway. Responsibility and engagement are necessary to work with flexible schedules and less visual contact with the teacher. Personal discipline and time management will become more and more important, also using technologies.

In this regard, working as a community implies engagement, collaboration and communication, also adopting appropriate tones and modes. Transversal competencies will become increasingly relevant in this scenario, more than specific and complex contents.

Overall country-based evaluation

Spain is an advanced country in terms of science and innovation, with relevant participation in international research networks, as well as with smart cities like Bilbao and Barcelona showing the original design and tech industry or research projects. Interesting and innovative social models are also well known, with the case of local governments open to new forms of learning in a continuum from formal to non-formal and informal spaces not only for adults but also for young people in and outside educational institutions. Citizen participation is also driven by innovative digital portals and approaches. These characteristics of the social fabric endow the citizens to pursue innovation and to be resilient against the tragic Covid-19 impact.

The mixed, hybrid or blended learning models that will be required in the “new normal” will respond to specific and contextual scenarios, driven by the same cultural diversity across the Spanish territory. How will we balance and decide the several needs for the right schedule? Although this is a complex question there are a number of strategies that could be considered. Firstly, organizational flexibility, in order to make changes when dealing with periods of discontinuous or intermittent presence and considering the problem of inequalities. Secondly, learning design and development reversibility, in terms of resources and activities that have been created for online that can become in presence and vice versa. Thirdly, the integration of different views on time in education. This means that synchrony models could be considered useful to share milestones, integrating them with workflow and processes as a conceptual base for asynchronous activities. Fourthly, diversification in the implementation of mechanisms for gathering information connected to evaluation. Lastly, the consideration of the cultural and social context in terms of organizing and re-arranging collaboration and networks to provide teachers and students’ support to keep on working healthy.

Like other Mediterranean countries, Spain faces a problem of effectiveness and efficiency of the educational system. Overcoming them will require teachers' creativity and excellence. However, this situation can be quite stressful and demotivating for a single individual. As mentioned earlier, there are also resourceful and resilient communities all across Spain, but the connections require further coordination, awareness and planification of organizational change. Successful interventions reshaping future practice can be implemented only by building over such an enlarged scenario of collaboration between the education institutions, the single educators and learners of all ages.

Sweden

Overview

Sweden has a population of approximately 10M people According to the World Population Review (2020), of whom about 2M are under the age of 18 and 85% of them live in cities. Sweden is a multicultural country: 15% of Swedes were born in another country, and about one in five children in Sweden has a family with roots in another country. Most of Sweden's population has received higher education. Today, around 28% of the population has a post-secondary education of three years or more, which is an increase from 16% in 2000. In Sweden, there are around 60 higher educational institutions in which the state is the principal. There are also private educational organizations and several higher education institutions with an intergovernmental principal.

The Swedish government was closely monitoring the development of the coronavirus pandemic and making the decisions necessary to limit the spread of infection and counteract its consequences for society. On February 01, 2020, the government classified the new coronavirus as a socially dangerous disease and initiated extraordinary measures to prevent the spread of infection. The message from the government and Prime Minister was consistent;

- This crisis will last for a long time.
- It will be challenging, but the society is strong.
- If everyone takes responsibility, together we will cope with this crisis.

The authorities who led the actions and recommendations in Sweden together with the government were; The Public Health Agency of Sweden, National Board of Health and Welfare and the Swedish Civil Contingencies Agency. All information was available in all languages which are spoken in the country, all of the authorities held together with the government continuously daily press conferences.

The Swedish approach and measures were built on sustainability so it could last for a long time. As Sweden is a democratic country, large responsibilities were given to the people and to trust them for preventing the spread of this disease, instead of giving restrictions. People were encouraged to understand and accept the recommendations and in case to follow eventually restrictions. Everyone in Sweden was urged to follow the authorities' advice, such as staying at home from work and refraining from meeting other people even with slightest symptoms. The overall goal of the government was to reduce the rate of infection and flatten the curve to reduce the number of people who were sick at the same time. The right actions needed to be taken at the right time to achieve the greatest impact. The government made every decision necessary to protect people's lives, health, jobs, and economy. The measures taken by the government and the authorities to reduce the spread of infection was balanced against the effects it had on society and public health in general. The measures taken were constantly reconsidered as the situation changed. An important starting point was to carefully consider the expertise of the authorities. In Sweden, because the population has a high level of trust in the authorities, people followed their advice to a large extent. People were generally acting responsibly to reduce the spread of infection, such as limiting their social interactions and other social contacts.

In short, the government's measures and decisions were based on the following aims:

- Limit the spread of infection in the country.
- Ensure that resources are available for health care.
- Limit the impact on socially important activities.
- Mitigate the consequences for citizens and businesses.
- Settle concerns.

- Put the right action in place at the right time.
- Not gather more than 50 people at one time, and preferable to meet outdoors, and within two meters distance (physical distancing).

From March 18, 2020, the Swedish Public Health Authority recommended that all upper secondary schools, vocational colleges, adult education institutions, universities, and academic colleges buildings should be closed to prevent the spread of the coronavirus. It was recommended that teaching should be transformed to distance education and conducted remotely. However, most educational programs were already following a blended flexible model, and online support, resources, learning communities, and collaboration tools were mostly already in place. Many companies also made more or less immediately their resources freely available.

As the national elementary schools had better opportunities to deal with the effects of the coronavirus, than the educational institutions mentioned above, they were not closed, and classes were conducted as usual. in the buildings. Rationales were mainly that children don't get sick of Covid-19, and that schools are often close to where families live, so no need of transportations, but most of all, in case of closure there should be vulnerable effects for individuals and society. However, it was later recommended by the government that vulnerable pupils could receive distance education.

An article about the Swedish strategy was published in *The Guardian*. The article explained the measures taken in Sweden in response to the coronavirus pandemic. At a press conference with foreign journalists, not at least after this article the Swedish Foreign Minister said: “It's a myth that life goes on as usual in Sweden. We work with the same challenges as other countries do in managing the scale and speed of the pandemic and the pressure on healthcare, and we use the same tools that are used in most other countries to encourage physical distancing, to protect people at risk, to carry out tests, and to strengthen health care in order to manage the pandemic. Only in two major respects, Sweden differed from other countries: We have not closed all schools, and we have not forced people to stay home. Instead, we are working with a combination of laws and recommendations.” The Director General of the Public Health Authority, argued at the same press conference that it was the tone that separated Sweden from other countries, which meant that Instead of saying that people have to stay home, the authorities and governments explained the rationales and the reason for it.

Regarding K12, a collaborative initiative was in place almost immediately. School at Home (Skola Hemma) supports schools in dealing with the consequences of the coronavirus pandemic. The website is maintained by RISE (Research Institutes of Sweden Cooperate) in collaboration with The Swedish National Agency for Education, Swedish Municipalities and Regions (SKR), Swedish EdTech Industry, the National Radio Broadcasting (UR), the Swedish Institute for Educational Research, the National Agency for Special Needs Education and Schools, SPSM, and Save the Children. Resources and inspiration are offered here, and with ongoing updates. On May 07, 2020, School Home hosted an online conference, with speakers from all representatives of the partner organizations, aimed to inspire, support, and to share experiences, knowledge, and resources to educators. All involved stakeholders were involved such as pupils, teachers, librarians, leisure time staff, and researchers.

To fight the educational consequences of the coronavirus pandemic the government implemented extensive measures in the field of education and research, such as funding, processes, resources, security and safety. Some examples to be mentioned were:

- major investments in colleges and universities, for example, several thousand new study places.
- extra application rounds became available for courses, and course packages
- if needed quick changes in curricula became allowed
- Universities were given a larger and innovative role to support lifelong learning
- the Swedish Research Council was given the mandate to coordinate a Covid-19 data platform for integration with the European open research cloud
- tools and processes for validation and recognition were promoted
- support structures, mechanisms and processes were available to facilitate the work situation in preschools and schools during the.
- opportunities for distance education were increased to make it easier for students and teachers
- possibility of issuing final grades in Adult education Komvux was extended for one year.

- education subsidies were paid earlier, and public colleges and student associations received financial compensation in advance
- expanded opportunities for temporary parental benefits as a result of Covid-19 were provided
- extra study places were allocated for summer courses and base year studies
- 100M SEK was allotted for research on Covid-19

Reflections from the educational landscape

Many resources, networks, and software were available for free from institutions and companies. Social media were widely used for providing resources and sharing experiences. There was a very quick shift to increased collaboration, capacity building, and culture change and development (Ossiannilsson, 2020) Most of the vice-chancellors at Universities, and rectors at schools showed very strong leadership and provided services, infrastructure and services to facilitate the emergent change, but also to develop sustainably over time. The infrastructure had been stable and even improved at most educational institutions. Stakeholders, including teachers, researchers, and educational technology companies h collaborated and cooperated as never before (Ossiannilsson, 2020). The culture of sharing had been stronger than ever, and so had innovation and creativity by all means and at all levels (Universitetsläraren; Ossiannilsson, 2020); Ossiannilsson & Sandström, 2020; but also continuously in TV, Radio broadcasting, and Press, but also Universities newsletters, and blog posts),

Overnight, almost all teachers received a crash course in distance learning and digital competences. Vulnerable school staff, students, and pupils have had some difficulties, but it has become obvious that some vulnerable persons have benefited from the current situation, and they have come into their own (Ossiannilsson, 2020; School at Home - Skola Hemma).

The government encouraged and supported the importance of conscious didactic choices during the rapid transformation beyond the urgent move of classrooms online to provide emergency remote distance education. The government encouraged educators to be patient, to hold out and to ensure systematic quality, several initiatives were given. Most of the reports from schools and universities emphasized the importance both for teachers and learners of being present in the here and now (cognitive, physical, social and emotional). Even the importance of transparency, clear communication, and feedback became even more obvious, and had been communicated and supported at all levels.

Both K12 and higher education already had LMS in place since a very long time ago, and they applied digital resources in both synchronous and asynchronous modes. Computer/internet-based, mobile phones and social media were also already in place. Communication systems, such as Zoom, Microsoft teams and others, were mainly used as well as a wide range of communication tools and shared working spaces, even in the practical parts of courses. However, many teachers and instructors found it difficult to move to emergent remote education from the start of the pandemic. There was a change in both how to think about time and space, and they had to get to know their students/pupils in a new way.

Several teachers both K12 and higher education had been rethinking their role, the roles of education and learning, and what is important for learning. They discovered new working methods as well as the importance of teamwork and making conscious didactic choices. They began to trust the independence and self-regulated learning of students and pupils as well as the importance of personal learning in enabling everyone fair chances to succeed (Ossiannilsson, 2020).

Those learners who already were successful the change had been rather easy. However, vulnerable learners had experienced difficulties, especially those whose parents were working at home, and maybe where there are also several siblings who also studied remotely. In those cases, it was difficult to find sound study environments. In addition, maybe they didn't have the required access to computers and the Internet. The eventual social, cultural and digital divide became visible.

Issues were also raised regarding food. High school pupils have by law free lunches at school, which for many pupils are the only daily meal, especially for those whose families are poor. Now maybe it is even worse for them if they, for example, are unemployed because of Covid-19.

Lessons learned

Several sources as in Universitetsäraren, and Ossiannilsson & Sandström (2020), but also continuously in TV, Radio broadcasting, and Press, but also at for example Universities newsletters, and blog posts, reported that schools, institutions, and teachers that already applied blended learning and digital tools

came on track quickly and easily, while those who were not so familiar with distance education, nor online learning.

In the spring of 2020, the School Inspectorate (2020) conducted inspection talks with the principals to review the upper secondary schools' distance education due to the restrictions under Covid-19. In the review, they asked questions about teaching, grading and guaranteed teaching time. Already, a first partial account of distance education in secondary schools was published on May 15, 2020, based on interviews with 45 principals. When the review is completed, it will include calls with approximately 250 principals. The School Inspectorate will then describe the results in a special report. In summary, they describe it as; The transition has worked well, and teaching has continued in a structured digital environment and with scheduled lessons. However, it has demanded a great deal of commitment from teachers and support staff to provide safe and structured teaching from a distance. Some groups of pupils were affected by the transition: those who do not have a good learning environment at home or who have difficulty concentrating. Many pupils lack the social context of the school and the opportunity to move around and make contacts. It was difficult for the teachers to make a balanced assessment of the pupils' work and some elements were difficult to achieve in a digital environment. It can be difficult to maintain pupils' motivation and commitment the longer they learn from home.

The Swedish Student Union sent out a survey to all its members on how schools work at a distance, as a result of the coronavirus. The more than 7,000 who responded were evenly distributed across the high school's various grades and lived all over the country. Some of the findings from the survey were that students felt a greater workload, reduced motivation and that more personal responsibility and concern about how to show their knowledge were required. Every fifth student replied that distance education worked less well or not at all well, which generally does not depend on the technology but more on the lack of motivation and that it was difficult to stay focused.

Many students felt that the situation had led to more tasks and some also found it difficult to get hold of their teachers, especially if extra support was needed. 28 per cent believed that the support for home studies was less good or not at all good, and some said that communication became more difficult when you cannot be seen face to face.

For students who were used to taking responsibility themselves, things were going quite well. For students who rarely took their own initiative and were in need of more support, things were going worse, a student wrote.

The survey from the Sweden's student corps showed that more than half of high school students were satisfied with their work environment, but many experienced increased stress and loneliness.

One example from the Universities perspective can be as described by the Vice Chancellor from Lund University (26 May, 2020). The effects of the corona crisis in the form of, among other things, high unemployment will certainly be felt for some time to come. Universities and colleges, therefore, need long-term investments and more places that allow more young people to start studying. Universities have the capacity and the will to accommodate more students - and it is unfortunate if many high school students are allowed to turn around the door because of too few places at the universities. The government is investing in summer courses, base years and assignment training, extra fundings was received for 2020 and 2021 - it is also important that resources are not withdrawn when the crisis is over. If the universities are increasingly given more permanent places that they can independently dispose of, more people will get education and more opportunities to manage course and program offerings according to changing needs. Recently, the government announced that Lund University will receive approximately SEK 4 million for distance education and open online courses in 2020. The university has taken a major step forward in the digitization of education due to the corona, and all the initiatives and the renewal which have been seen will continue - tomorrow's education in the form of increased digitalisation, is here to stay within the courses and parts where it can contribute to increased quality. Still, Universities are waiting for recommendations from the Public Health Authority and the government about distance education this fall 2020. However, some Universities have already decided and announced that they will continue with distance online learning until November 2020. Anyway, most universities are planning for both teaching and laboratory work to be given on campus in the autumn term of 2020 and they prepare for that, while they in parallel prepare for continued distance education. Whether the education will take place at a distance or on campus, Lund University works to make the education and study situation the best possible.

Creativity and innovation have enabled all measures to be visible, developed, and cultivated. New practices emerged, which now are needed to be mainstream (Universitetsäraren; Ossiannilsson & Sandström, 2020). Some practices needed new directives, collaboration, and resource allocation systems. Flexibility and agile working methods had been successful. Some urgent concerns had been emphasized:

- processes in the education system had to be improved and to be apparent
- consequences of Covid-19 had strong influences in daily life
- school meals became a concern for some pupils in high schools as this is the only meal they get
- school crisis plannings have to be reviewed.
- clarity of communication and leadership are crucial
- safety and security online, especially for children and young people are crucial in online environments
- relationships must be established and maintained regardless of the form of delivery of education
- mental, emotional and social health is of utmost importance in safeguarding in all forms of education
- take advantage of the innovation, creativity, flexibility, and agile working methods that became visible, and try to mainstream it
- it became emphasized that children are most physically active when they are in school, which has now become alarming, as many children are at home more than usual during the coronavirus pandemic, they don't get enough of physical activities
- digital competences had been developed rapidly during the coronavirus pandemic
- pupils and students have taken responsibilities for their education, and they have developed social, emotional and mental competences as well as non-cognitive competences.
- accessibility, social justice, and equality must be ensured independent study form or delivery

Suggestions

Based on the observations gained during the Covid-19 crisis, the following suggestions should be taken into consideration (based on the conference on May 07, 2020, School Home, and statements from Minister of Education:

- *Suggestions for policymakers:* There are huge needs for policymakers to create new directives. In Sweden, several initiatives for lifelong learning are already in place. However, there are still needs for changes in regulations, recognition, exams, and assessments. The monitoring and evaluation of quality must be related to new modes of training and education.
- *Suggestions for schools and universities:* There are needs to take a holistic, ecosystem approach. Do not look back but forward. What are the potentials for the digital transformation to be sustainable by ensuring quality, access, equity, gender equality, and inclusiveness?
- *Suggestions for educators:* Be proud of what had been developed and achieved during this crisis. Learn from both positive and negative experiences. Cultivate and develop what worked well, based on experiences during this period. Continue to be agile, flexible, and innovative.
- *Suggestions for learners and students*: Continue to make your voice heard and to be a collaborator and contributor to your own learning pathways together with your peers. Be involved in all processes related to your education and make demands. It is your education. You invest in time, commitments, and resources of various kinds.

Overall country-based evaluation

It is obvious that the entire society is affected in depth by a crisis such as the coronavirus pandemic, including school and education. The size and scale of this pandemic showed and confirmed how important the school is in building our community. In only a short time, the complexity of the education system had been recognized regardless of the form. In the future, even more mixed forms as well as digital and open learning resources, even in local education will be applied. We have seen that students have assumed the responsibility for both themselves and society. This generation has proven that it is

responsible and completes tasks in time. They have assumed leadership and developed social and emotional skills in addition to cognitive skills (Swedish Minister of Education).

In the autumn of 2020, university enrolment increased by 13%, or almost 47,000 persons, compared with the autumn of 2019. The increase in the number of applicants to university may be an effect of the coronavirus pandemic and the current situation in society and the labour market. However, a positive effect is that more people will choose to be educated, educate themselves, or exchange skills and competences n times like these. As a result, more people will be better equipped when the economy recovers. It has been obvious that among the courses that will receive more applicants in autumn 2020 will be in the healthcare field.

Both the Minister of Education and the Minister of Higher Education and Research emphasized at many conferences and press releases that pupils and students who have their exam form spring 2020 will be high valued at the labour market as they have very obviously shown their ability to navigate in a very insecure context and to take the responsibility themselves for their learning and the society, and have developed social and ethical competencies, besides the science competencies.

The Netherlands

Overview

According to World Population Review (2020), The Netherlands has a population of 17M inhabitants. In the academic year 2018-2019, the number of students was: in primary education 1.45M, in secondary education 970K, in vocational education 500K, and in higher education 650K. According to Eurostat, 98% of the households in the Netherlands in 2019 have broadband access to the internet (https://ec.europa.eu/eurostat/data/browse-statistics-by-theme).

The first official case of Covid-19 contamination was on February 27, 2020. After initially being referred to as a 'minor flu with few consequences' the number of infections increased exponentially in the first two weeks of March. This forced the Dutch government on March 12, 2020, to announce several measures, amongst which: people were called upon to work from home as much as possible or to spread their working hours. Their rationale was to strive for a minimum number of patients on intensive care units, to have this capacity manageable.

All higher education institution locations were closed. Schools in primary, secondary and vocational education and childcare remained open since social consequences of the closure of these schools would be considerable and closure would do little to limit the spread. However, there was strong opposition from teachers and institutions. Therefore, on March 15, 2020, Dutch government decided to close down all schools. Only children of parents in what were called ‘crucial professions’, such as those in health care, police, public transport and fire brigades, were allowed to attend Kindergarten and primary education schools.

At the beginning of April, the Dutch government decided that both national assessments for the final year of primary schools and national exams for the final year of secondary schools were cancelled. Instead, the advice of teachers in primary school had to be decisive for admission of learners to the level of secondary education (either pre-vocational secondary education or general secondary education). For those leaving secondary education, the diploma would be based on the results of the local school exams (in a normal situation these would decide the final grades for 50%).

The number of infections continued to increase and there was a threat of a shortage of intensive care units in hospitals. Stricter measures were called upon by the government. On March 23, 2020, a so-called ‘intelligent lockdown’ was decided. Almost all professions with human contact were prohibited, except for (para)medical professions. The lockdown allowed people to do their daily shopping, have a stroll (but preferably close to home), keeping a 1.5 meter distance, and only when you had no signs of a cold or (worse) had a fever. Gatherings in the public space of more than 2 people were forbidden. Households were only allowed to receive visitors with a maximum of three people, with a minimum distance of 1.5 meters. All educational institutions, from Kindergarten to university remained closed.

Except for a few occasions, there was great understanding of these measures by Dutch people and they were followed rather strictly. All measures of the intelligent lockdown taken together have led to a steady decline of the contaminations and, as a result, less pressure on the intensive care capacity.

On April 21, 2020, Dutch government announced to partly reopen schools in primary education starting May 11, 2020. Pupils were allowed to go to school for half of their teaching time, but in smaller groups. The other half of the time they were expected to receive emergency remote education. Kindergarten and schools for primary special education reopened fully from that date. Institutions for secondary education and higher education were to partly reopen at the beginning of June. Most institutions will then give priority to learners taking (practical) assessments, in order to prevent as much as possible any impending study delay.

Reflections from the educational landscape

Within a week after the closure on March 15, 2020, most educational institutions had pivoted their education to emergency remote education (in a mixture of synchronous and asynchronous delivery modes). For many teachers, from primary to higher education, it was their first encounter with providing education online. They quickly experienced that different time and group arrangements were needed compared to face-to-face education, e.g. by noticing that the attention of learners declined quickly during lecturing without interaction.

As a result, teachers and institutions began to make grateful use of the support sites of national educational ICT- organizations and mutual help on a fairly large scale. In a very short period of time, these websites popped up to guide teachers in remote teaching with tips, tricks and overviews of safe tooling. Both individual institutions and the two Dutch public organizations for Education & ICT, SURF (for higher education) and Kennisnet (for the other sectors) were active in this area (https://communities.surf.nl/group/59 respectively https://www.lesopafstand.nl/).

SURF regularly organized webinars on specific topics, e.g. online proctoring, using OER or alternative methods for assessment. In primary education, several schools arranged for weekly physical lesson packages to be worked through at home, preferably supervised by the parents. Teachers were available online for a daily group instruction and for feedback during the day, providing some structure for the pupils (and their parents).

Dutch Open University (OUNL) developed a website containing guidelines, manuals, tips, and directions for developing, setting up, and supervising online education. Insights and experiences of the OUNL with online education and digital didactics have been brought together and made accessible to everyone involved in the switch to providing education online (https://youlearn.ou.nl/web/hulp-bij-online-onderwijs).

In Kindergarten and primary schools, teachers sought virtual contact with their pupils as much as possible on a daily basis. Parents started massively teaching their children at home using commercial online programs like Squla, Basispoort and Junior Einstein.

Because more and more institutions for higher education were counting with a scenario where also the first semester of the academic year 2020-2021 will be online, there was a growing interest of teachers in a more thorough approach, including redesign of (parts of) their lectures to realize a better quality online education and learning. Judging by the questions for more information that reached one of the authors, many teachers have become interested in available Open Educational Resources (OER) as addition to or replacement for the learning materials they were using in their regular teaching.

Items in the daily news created a picture of acceptance that there is no other way, but also a growing desire to return to a normal face-to-face situation. One of the first studies in primary and secondary education by Bol (2020) indicates that differences in parental support are driven by the ability to help: parents with a higher education background feel much better able to help their children with schoolwork than low-educated parents. Also, children from privileged backgrounds have more resources (e.g. their own computer) to study at home. Parents also indicate that schools offer more far-reaching education to children in general secondary education than to children in pre-vocational secondary education. There are also clear signs of the gender gap: parents feel much better able to support their daughters than their sons.

The national Education Inspectorate (Inspectie van het onderwijs, 2020a) published a monitor for all educational sectors, based on interviews with staff and management of a sample of institutions. From this monitor and a letter to the Parliament from the PO-Raad (the sectoral organisation for primary education) (https://www.poraad.nl/file/43485/download?token=tziAh_tU), the following issues where staff, teachers, learners and parents in primary and secondary education are struggling with were mentioned:

- feelings of uncertainty about the danger of contamination for or by young children, with the schools in primary education reopening;
- concerns about pupils falling behind and how to solve that without putting too much pressure on teachers who already did a tremendous job the first months of the Covid-19 crisis (so preferably no shorter summer holidays). More specifically a lack of sufficient digital equipment for learners at home and inability to get into contact with hundreds of learners in less privileged families are mentioned;
- need for extra attention for children who need specialized (primary) education who often cannot comprehend what is happening.

Several higher education institutions were confronted with concerns from student organizations about privacy and violations of GDPR using online proctoring surveillance in exams. These concerns have even led to questions in Parliament (Tweede Kamer der Staten-Generaal, 2020). In (Inspectie van het onderwijs, 2020a) other issues with regard to vocational and, higher education experience are: the inability to continue internships for students, concerns about students in a challenging environment (part-time students or international students, workload for teachers, social isolation among students and the financial consequences for the institution (e.g. because of fewer enrollments from international students).

Many students in vocational and higher education experienced stress due to the crisis. Anxiety about a delay of their study and financial issues (e.g. because they have lost their job due to the economic depression caused by the pandemic) were among the causes. A survey study from the Dutch Student Union (Crabbendam & Goes, 2020) into experiences with emergency remote education had as main findings:

- 66% of the students were worried about the consequences of the crisis;
- 48% of the students in universities of applied sciences and 27% of students at research universities expected study delays (e.g. because practical exams cannot be taken);
- 42% of the students in universities of applied sciences and 31% of students at research universities experienced the quality of distance teaching as being low. The numbers for those experiencing the quality as high were 23% and 25%.

These findings were based on responses from 427 students of which 53% were from a university of applied sciences and 46% from research universities.

Some groups of students and teachers were directly involved in fighting the pandemic. Nursing students and teachers provided much needed hands-on support in hospitals and houses for caring elderly and vulnerable people. Within a month time, a group of students and professors at Delft University of Technology had developed a safe and relatively easy producible ventilator that can be used when a shortage occurs due to the coronavirus pandemic, sharing their documentation open source (https://www.operationair.org/en).

Lessons learned

There are several lessons learned. Because it was the only option available, the pivot to emergency remote education was accomplished fast and received broad acceptance from both teachers and learners, despite the concerns mentioned earlier. For most teachers – the ‘early’ and ‘late majority’ in terms of Rogers’ theory of diffusion of innovation (Rogers, 2003) - this has been the first comprehensive introduction and experience with online education. E.g. reuse of freely accessible resources (with or without rights of adaptation under conditions prescribed by the open license) has undoubtedly grown considerably because teachers and students will experience the rapid availability of these resources as an added value in the current context.

In (Crabbendam & Goes, 2020), students rate the following aspects as characteristic for good online education: easily accessible teachers, having available the appropriate means and the ability to organise the day yourself. As aspects leading to mediocre online education the following were mentioned: bad internet connections, difficulties in creating an effective study environment at home, missing the social environment with fellow students, insufficient communication from the institution about the situation, online education does not always help to comprehend the content and does not offer sufficient different ways to take education. Students with disabilities experience even more difficulties:54% experienced obstacles against 27% in a normal situation. This group of students therefore needs extra attention in online education.

The 2020 annual report of the Education Inspectorate (Inspectie van het onderwijs, 2020b) outlines the long-term developments and results of education as a whole. Only the foreword refers to the plausible risk that the global pandemic will have far-reaching consequences for education. The report did not yet address this risk, nor did the Ministry's previous annual reports and multi-year policy plans. Forecasts for the future consisted mainly of extrapolations or trends observed. What this crisis has made clear is that policy will also have to take into account non-linearities because the future is not a simple, not even a sophisticated extrapolation of past trends. Highly improbable events take place. Asymmetric outcomes or Black Swans as Taleb (2008) has baptized them: “I will never get to know the unknown, since, by definition, it is unknown. However, I can always guess how it might affect me, and I should base my decisions around that” (p. 210).

Suggestions

1. From the study of (Crabbendam & Goes, 2020), the following suggestions were mentioned for teachers and institutions for higher education:
    - Educational institutions should communicate as clearly as possible about students' study progress. There must be timely communication about graduation, internships and moving on to subsequent education;
    - Students' experiences differ. Lecturers and institutions must be more responsive to students' individual situations;
    - Students with a disability need personal contact just at this moment.

2. Pandemics and their impact on different education systems must become part of strategic education planning. National education systems need to prepare for the potential long-term consequences, but also to seize the opportunities to change and reposition education and training with a view to sustainable development.
3. Internationally, countries need to learn from this situation and prepare contingency plans to meet the challenges of the next pandemic. This publication is a good contribution to that end. Partnership and networking will be the key to sharing and learning from each other. UNESCO has an important role to play in this.
4. How can we ensure that these experiences sustain in a post-corona era and lead to an optimal blend of online and face-to-face education? The key to this lies in determining what added value teachers and learners in a more normalized situation will experience (Schuwer & Janssen, 2018). That added value may then well be different than currently is experienced.
5. Redesign of education will be necessary, where learning goals, educational activities and assessment are constructively aligned (Biggs, 1996). A promising angle may be a shift to alternative forms of assessment, to avoid dependency on surveillance software.
6. Also important concerns are about the costs that will be associated with a transition to online distance education, even if only partially. The experience gained by open universities worldwide clearly points in the direction of greater upfront investment, in the creation of materials and courses suitable for distance learning, but also in terms of the professionalization of instructors in the field of digital didactics. One can expect a larger demand for institutional support, so institutions can prepare for this. This may ask for a change in policies to secure this enhanced support. And this, in turn, will have consequences for the current business and funding models of publicly funded education in the Netherlands.

Turkey

Overview

Turkey, located both in Europe and Asia, is a transcontinental country with approximately 83M population. In Turkey, upon the outbreak of Covid-19, a scientific committee was established, and early precautions were taken. When the pandemic reached its peak in many European countries, Turkey was still a safe haven. Nevertheless, when a Turkish citizen carrying the virus came from abroad to Istanbul (a city of 15M), the pandemic became a serious issue. By March 10, 2020, the first Covid-19 case was detected. As a Mediterranean country, Turkish culture is family-oriented, and it is believed that people should maintain their social bonds with their close circles. This characteristic of Turkish culture speeded up the spread of Covid-19 pandemic. Taking it seriously, the Turkish government took radical decisions in social, economic, political, administrative, judicial, military and religious domains, which led to important consequences that Turkish people faced for the first time in their lives.

The Turkish Government followed a different protocol to slow down the virality of Covid-19. First, a curfew was declared for those over 65 years old who are vulnerable to Covid-19 and then this was extended to those who are 20 years old and below. Meanwhile, Turkish citizens were strictly warned to strictly keep social distancing. Around a month after the first detection of Covid-19, the Turkish Government declared a lockdown (in addition to the curfew for specific age groups) for the weekend on April 10-11, 2020. For weekdays, people aged between 21 and 64 were advised to keep social distance and impose self-lockdowns; they were allowed to keep on working remotely, with flexible hours, or to work by shifts. For those people who worked in production lines that nurture the Turkish economy, they were allowed to keep on working by taking necessary measures to protect themselves against the virality/contagion of the pandemic because it is thought that, after the Covid-19 pandemic, an economic crisis will be on the door, and it will hit many countries harder, including Turkey. Another measure taken was shutting down places and buildings where human to human contact was possible through social gatherings. This protocol applied to schools and it was the first time in the educational history of Turkey that face to face education was interrupted countrywide

Reflections from the educational landscape

In Turkey, there are around 18M students and 1M teachers in K12; 7.5M students and around 170K faculty members in HE. In K12, the total student population approximately constitutes 21% of the overall country populations while students in HE constitute 10%. Roughly, 30% of its citizens have enrolled in a school or a university and the student population was among the drastically affected demographic due to Covid-19 pandemic.

Historically, Turkey has practised distance education for a long time, starting with Anadolu University which has around 3M enrolled students and is known as a giga university (Bozkurt, 2017; 2019). Together with distance education students from two other universities, Atatürk University and İstanbul University, operating in dual mode (face to face and distance education), nearly half of the students are enrolled in distance education programs.

By March 16, 2020, schools and universities were suspended until further notice. In the K12 sector, the response to Covid-19 was swift. The platform, Eğitim Bilgi Ağı / Education Information Network, nurtured by crowdsourcing and outsourcing, was redesigned for emergency remote education and put in practice. To mitigate inequality and the digital divide, MoE granted free but limited internet bandwidth for K12 students. Besides, delivering educational content online through the Education Information Network, MoE allocated a TV channel for educational broadcasting which could be accessible via the Internet, IPTVs and satellites. Additionally, all these services were available through mobile apps and students were able to access educational content from their smartphones (Use of smartphones or tablet computers is very common in Turkey). While there were concerns about the quality of the instructional design of the video records, MoE successfully managed the process. There were some creative implementations. For instance, between the scheduled courses, instead of breaks in physical learning settings, K12 students were able to join virtual museum tours, play educational games, or read books online. Zoom and other Web tools for synchronous lectures were also used to support online delivery. While it seems that emergency remote education practices were merely online, it should be noted that education in Turkey is for free at all levels and free printed books are already given to K12 students at the beginning of each school/academic year. That means, with online and offline learning materials, there was a learning environment accessible by most of the K12 students. Additionally, counselling services were given online, students and families were able to communicate in predefined office hours

for both academic support and psychological support. In Turkey, education is facilitated and regulated by MoE and there is a strong hierarchical structure. Therefore, reactions to Covid-19 pandemic were timely and controlled because the decisions were taken by a central structure.

From K12 students' perspective, despite the fact that it was easy for them to shift to emergency remote education, they complained about the extensive amount of homework. While younger K12 students could adapt easily and perceived this shift somewhat as fun, it was a stressful process for those who were in their final years and were preparing for the high school or university entrance exam. Taking into account the stress and physiological pressure, MoE announced that students would not have to worry about the subjects which were supposed to be covered in the spring term. MoE further announced that there would be no pass/fail criteria for the students and all students would pass. The rationale for such a decision was the need to address students' physiological moods and any potential inequality outside of the schools.

As far as teachers were concerned, their perception of distance education, which was considered as a simple process, radically changed and they learned from their experiences that distance education, called online learning or emergency remote education, requires planning and preparation. It was a challenging process and the workload was much heavier than their face to face practices. One other promising thing was online support communities. They shared their practical solutions and learning materials they developed. They developed open educational resources (OER), without referring to them as OER or licensing them properly and shared in and out of the online communities.

As for young students' parents, they were assigned a new role in emergency remote education. Because young students do not have self-regulated and self-directed learning skills, they need to be scaffolded and supported during the Covid-19 times when the teachers' responsibilities in this area were mostly transferred to the parents.

In Turkey, the Council of Higher Education (CoHE) regulates and manages the educational processes in HE. Because there is a central structure with a flexible administration, decisions were taken swiftly and put into practice. The first warning by CoHE was on February 4, 2020, which was about taking necessary measures and announcing precautionary measures. As of March 16, 2020, education at 207 universities was suspended for a week. Meanwhile, the opportunities and capacities of universities for emergency remote education were identified.

A roadmap for distance education at the universities was created on March 17, 2020, by a delegation of participants with different expertise. This roadmap focused on five primary topics: curriculum, infrastructure, human resources, content, and implementation. The CoHE decided that digital educational resources and distance education methods would be used for theoretical courses. Besides, guidance for the applied courses would be given at the earliest convenience.

On March 26, 2020, CoHE made another announcement which required shifting to online distance education, or as referred in this article, emergency remote education. However, while distance education or open and distance learning is not new concepts and has been practised for a long while in Turkey, their legal definitions are distinct, and not all universities were allowed teaching masses by resorting to open and distance learning. Therefore, to better interpret the Covid-19 process in Turkey, this distinction should be revisited briefly. Accordingly;

> "open [and distance learning] offers open admissions with minimal entry requirements and flexible learning opportunities, whereby learning is self-paced, attendance is not required, learners are highly independent in time and space, and learning materials and spaces can be offline and/or online. On the other hand, distance education offers partly flexible admissions, whereby students are expected to meet predefined entry requirements and pay for and attend online courses that are delivered in online spaces with online materials. Moreover, open education can currently be delivered by only three dual-mode state universities (Anadolu, Atatürk, and İstanbul Universities), whereas distance education can be delivered by private or state universities" (Bozkurt, 2019c, p. 41).

Such a distinction means that while a minority of universities were ready for shifting to emergency remote education, some were partly ready, and a great majority were unprepared. Those that have been

practising only distance education use LMSs extensively. Codified in the legal definition of distance education and enforced by law, synchronous courses were required which were facilitated by distance education units. The academic staff with expertise were mostly located in a limited number of universities, and there was no time to support and train around 170K faculty members and academic staff. Expectedly, many universities jumped on the LMS bandwagon, outsourced (Blackboard, Edmodo, ALMS) or used open source LMSs (Moodle, Canvas, Sakai). The real problem surfaced soon after introducing the LMSs. There was infrastructure but there were no learning materials to fill in these spaces.

Upon the urgent emerging need, CoHE required universities to open up their educational materials. The call was responded mainly by universities already delivering education through open and distance learning, and by some other universities that initiated openness related projects. On March 25, 2020, CoHE Course Platform granted access to all higher education institutions. However, it should be highlighted that most of these learning materials were neither OER nor openly licenced. That means, while there was an attempt to keep the sustainability of education, probably there were violations of copyright issues.

Taking into account that the Covid-19 pandemic broke out after the spring term started, and considering that students might not have opportunities to attend emergency remote education courses or might not feel ready to attend emergency remote education, CoHE made another announcement that any students who were willing to suspend their education, were exempt from any sanction, and while it was middle of the spring term, they were granted right to suspend it. The rationale of this decision was to relieve students, lessen the pressure on them and make choices if they did not feel ready to attend emergency remote education. On April 7, 2020, CoHE decided to postpone proctored exams and recommended using assignments and projects for assessments and evaluation purposes.

In the first wave, many instructors were uncomfortable to navigate unknown territory. However, they quickly adopted LMSs into their courses. While there were both synchronous and asynchronous delivery modes, in HE, the majority of the instruction was perceived as uploading learning materials, and naively expecting students to learn from these materials. Issues that enable and ensure efficiency and effectiveness of distance education modes such as transactional distance, student-student, student-instructor and student-content interaction were mostly ignored. Students were the most vulnerable group during the Covid-19 crisis in Turkey. They left the cities they resided in assuming they would come back in a few weeks; however, they learned that it was more than a few weeks, but rather a closure until Fall 2020. The uncertainty with their education made them frustrated; on the other hand, being with their families helped them cope with this issue.

In Turkey, while most of the students have internet access, computers and smartphones, this didn't change the fact that students from low-income social groups were the ones most affected from the digital divide and unequal opportunities because the current emergency remote education practices adopted one size fits all approaches. In terms of emotional and psychological state, students who were supposed to graduate in spring 2020 term, felt extreme psychological pressure because losing a term means losing a year in their lives and a delayed start to their professional lives.

Lessons learned

The interruption of education due to Covid-19 justified the argument that OEP, OER and open scholarship are needed not only for equity and social justice purposes but also for sustaining the learning ecology. Many attempts as described above in the case of Turkey can be classified as OEP and OER, although they were intended to address the Covid-19 emergency. Taking this point of view, it seems that we need to nurture and advocate openness in education culture to make it sustainable, not only for emergencies but also for any time.

While Turkey's response was swift and worked in many ways, it was observed that practices implemented in the scope of emergency remote education were so didactic, structured and intended to provide access. However, education is a broad term and cannot be confined in the idea of providing access and transmitting knowledge. Either in a time of crisis or in a time of routines, pedagogy of care is needed. In this respect, Turkey was successful in K12, but for HE, the naive assumption that that adult learners do not need much care is not well-grounded both in theory and in reality. Being a young or adult learner does not change the fact that we are human and meaningful learning experience can occur as long as we meet many basic needs including care.

From a pedagogical perspective, the first wave responses concentrated on providing educational materials. In Turkey, for instance, assessment and evaluation is mostly based on exams and decisions to pass or fail are made in light of student performance in an exam, mostly in 40 minutes. In fact, for countries like Turkey, with a huge student population, exams seem to be practical, unbiased and fair. During the emergency remote education, continuous, process-based assessment and evaluation methods were adopted. It is maybe a good opportunity to maintain process-based approaches when it was widely adopted.

The crisis also indicated the roles of parents and families during emergency remote education. There was an important question to answer: Are only teachers and instructors responsible for education and setting a climate of learning and are only students responsible for learning? With teaching and learning, all the educational processes are a shared responsibility and not only in crisis time, but when life goes back to normal, parents, families and even other social circles should share this responsibility. During the crisis, it was seen that there were many support communities for students and teachers if that is the case in an emergency situation, why don't we form these communities, why don't we stand shoulder by shoulder any time?

Finally, it was seen that online is not magic and access-only approaches are not really effective. When we implement emergency remote education approaches as online solutions, we have to consider readiness and competencies of the students and teachers. When we deliver education online, we should consider if each student has equal opportunities and we should further consider what we do to balance inequalities.

Suggestions

Based on observations and impressions gained during the Covid-19 crisis, the following suggestions can be taken into consideration:

- Suggestions for policymakers: In Turkey, especially in HE, online distance education, or practices during the Covid-19 crisis, emergency remote education is perceived to deliver education to the masses. Such an approach hinders the real potential of distance education and, in fact, leaves negative impressions. Besides, massification potentially makes HE vulnerable to the marketization of education because the possibility to reach masses attracts venture capitalists. It was also seen that Covid-19 crisis is not an excuse to push vital issues into the background. Considering that universities pushed around 7.5M students into LMSs without any data privacy strategy, the consequences may be as bad as Covid-19. While this is important for HE where adult learners are exposed to this threat, it is more important for the K12 level.
- Suggestions for schools/universities: Covid-19 crisis also proved the value of open source applications. Institutions with low budgets easily integrated open source LMSs and were able to survive during the Covid-19 crisis. However, openness related concepts in education (OEP, OER, MOOCs, etc.) are valuable in a time of crisis and in a time of routine life. The best way to promote openness in education is nurturing and supporting an openness culture. Change starts from within and from mindsets, therefore, instead of introducing openness related practices blindly, we need to educate next generations by demonstrating and role modelling core values of openness of education: Sharing, caring, supporting and collaborating.
- Suggestions for educators: Teaching at a distance does not mean uploading content merely to online spaces. In fact, what educators should do is demonstrate their emotional presence, build a sense of community, support and care for them. And most importantly, learning is not an isolated process from real life. We need to show empathy and acknowledge that students are not clocked machines, but individuals in heart and soul.
- Suggestions for learners/students: As long as students exercise their agency, autonomy and responsibility, learning at a distance is not scary; on the contrary, it provides more flexibility and more space to manoeuvre for personal learning needs, more opportunities to follow their own paths and explore. While this is true for adults and young adults, students in K12 need guidance and more support from their families.

Overall country-based evaluation

Turkey, powered by its central administrative structure, responded swiftly and managed the process. However, it was seen that while some universities were well ready, others were really unprepared. Most of the students and teachers/instructors are experiencing emergency remote education. On the other hand, definitions are loosely used and there is confusion over what to do next: Should we follow a crisis time emergency remote education protocol, or should we follow a well-planned online distance education protocol? Misinformation and misguidance are as dangerous and infectious as Coronavirus and it spreads as fast as the Coronavirus. And there is a huge gap filled by misinformation and misguidance. In conclusion, we have to name what we are doing, and we have to take our decisions and precautions on this ground.

United Kingdom

Overview

The first confirmed cases of Covid-19 in the United Kingdom (UK) occurred in late January 2020, but the reaction from the government was rather slow, continuing to maintain the risk level at "low", until the first death occurred in late February. By mid-March, the outbreak had surged, with Members of Parliament amongst those infected. Prime Minister Boris Johnson urged people to work from home where possible, although social distancing was not yet put into place. Following a decision to reduce testing, discussions of the government's herd immunity agenda raged in the media.

The reaction by the public at this time was one of disbelief, with many people continuing to flock to public spaces and popular tourist destinations. Social distancing measures were eventually put into place and initially the National Trust opened their gardens for free, to assist people exercise in fresh air. However, this backfired as numbers far exceeded their estimations, and the decision was quickly reversed, with mass closures of public spaces, restaurants and bars, as well as sporting events.

When PM Boris Johnson, Prince Charles and the UK's Chief Medical Officer were diagnosed with Covid-19 in late March, public realisation of the seriousness of the pandemic began to sink in. Police were given increased powers to issue on the spot fines to anyone who defied social distancing guidelines, including only going out to shop once a week, and exercising once a day in groups of no more than two people, unless part of the same family unit. The elderly and vulnerable were in complete social isolation and had to stay at home.

A once a week doorstep celebration for the National Health Service (Thursdays at 8 p.m.) was a chance for the public to come together and celebrate the nation's essential workers, amid grave concerns over the amount of Personal Protective Equipment available for medical staff. There were also ongoing issues with a lack of tests being available to NHS staff, impeding their ability to return to work.

The government offered a generous support package to those businesses and workers affected by the pandemic, offering to pay up to 80% of salaries. However, this did not help many casual workers, who had already been laid off. Whilst PM Boris Johnson claimed on April 30, 2020, that the UK was past the peak of the pandemic, as of May 20, 2020, at the time of writing, social distancing measures were continuing, with little sign as to when or how life would likely return to normal.

Reflections from the educational landscape

A handful of educational institutions were forced into self-isolation and closure in early March, and by March 20, 2020, all schools were closed, except for those children of people considered to be "essential" or "key workers". It took a few days for the government to determine exactly who "key workers" were, eventually releasing a list including medical staff, supermarket and waste attendants, teachers, and government agency workers. However, given that there were 10.3m school children in the UK, this puts enormous pressure on teachers to stay in school to offer 'emergency child care', as well as pressure on parents to homeschool.

In an unprecedented move, the UK government cancelled all GCSE and A Level exams, announcing instead that students would be given grades based on teacher graded assessments and predicted grades. This caused enormous stress for upper secondary students and their families, although it also gave current GCSE students the opportunity to begin A Level preparation early. Likewise, higher education institutions also cancelled graduation ceremonies and exams, with some switching to online

assessment instead, and the majority of institutions turning to online distance education. Many research students who were meant to undertake field work as part of their studies were instead forced to switch to other forms of data collection, including online surveys, or to change from primary research to secondary research, such as systematic reviews.

Higher education in the UK is mostly offered on a fee-paying basis. The pivot to online distance education, therefore, was met with considerable disgruntlement from students, with some demanding a refund on their tuition fees (Weale, Hall, & Adams, 2020). The conversation in May 2020 turned towards the realisation of how much money it would cost universities to switch to an online model (Batty & Hall, 2020), as well as issues of learning design quality. There is evidence that many institutions reached out to those with expertise in online and distance learning, such as the Open University. There was also widespread concern that if lockdown measures were still in place towards the beginning of the new academic year, many students may not be prepared for or willing to engage in online learning, and instead may choose to defer their offers.

Schools without adequate online learning management systems initially sent out paper-based workbooks and photocopies of activities for students to complete, due to the relatively short amount of notice they were given to prepare for the shutdown. This was remarked upon in parliament and on Twitter by Lord Adonis, who criticised schools for their lack of online presence. Some schools opted to join free or low-cost LMS services, such as Class Dojo or Google Classroom, taking advantage of asynchronous discussions and mobile apps, with push notifications to parents' devices helping them stay in touch with work set by teachers. Some teachers also opted to set up Zoom calls for weekly or fortnightly classes, which were particularly well-received by primary school children, too young to keep in touch with their friends via text messaging. High school students were also encouraged to voice call their friends whilst working on assignments, so that they could talk through problems together.

The national broadcaster, BBC, made a range of OER available to students via their website, BBC Bitesize, including daily lessons for every year across K12, and the UK Government compiled a list of free online resources across a range of subjects and educational stages. Physical Education teacher Joe Wicks became an international sensation, offering daily live streaming of 30-minute workouts for children (and their parents) via YouTube.

Lessons learned

Despite the quite heroic efforts of educators to make the switch to online distance education as seamless as possible, and ongoing systemic issues with educational technology in the UK (Bond, Zawacki-Richter, & Nichols, 2019), this was a wake-up call for many about the level of educator technological and pedagogical skills and knowledge, as well as the willingness of (particularly higher education) students to engage in learning online, alongside their ability to manage time effectively. The pandemic also highlighted ongoing misconceptions in creating effective materials for online delivery, with the replication of face to face models continuing, and the misunderstanding by institutional leaders of the amount of time it takes to create quality learning materials.

Suggestions

Suggestions for policymakers:

- Increase the range and amount of educational technology training for pre- and in-service teachers as a matter of urgency going forward. This will allow teachers to consolidate and build on the skills that they have had to learn on the fly, and to ensure that educators continue to prepare students for the future workforce.
- Increase the amount of time for educator professional development, reducing the amount of teacher contact time, to enable the development of educational technology and learning design skills.

Suggestions for schools/universities:

- Institutions should conduct a needs analysis of students to better understand the barriers that they and families face.
- Schools could facilitate online sessions for parents and teachers in how to use particular tools, as well as how to support students in learning from home.

- Institutions should consider using a range of collaborative educational technology tools, such as Google Docs, Wikis and synchronous conferencing software (e.g. Skype, Zoom) to boost connection and engagement with learning, peers and the teacher.

Suggestions for educators:

- Record as many brief (5-7-minute max) videos with key ideas as possible - these don't have to be high tech, but your presence helps connect students to content, as well as to you.
- Make use of OER and likewise make your own learning materials open access where possible. This will reduce the burden on your time, as well as expose students to a range of teaching styles and modalities.
- Enable as many collaborative opportunities for students as possible, as this has been shown to boost engagement, and will also lead to a heightened feeling of connection with peers.
- Use a variety of educational technology tools that are freely available to students (including social media such as Twitter, Pinterest etc).
- Use ed tech that provides push notifications, especially in K12 level (to parents).
- Engage parents and families as much as possible in the learning process - this will alleviate stress and help engage families as well.

Suggestions for learners/students:

- Focus on time management - use a diary to plan out time and rotate between subjects, to avoid topic burnout.
- Engage in synchronous discussions with peers and teachers where possible, which will help maintain contact and help alleviate feelings of isolation.
- School students should be encouraged to share their work with their family as much as possible, even to involve extended family members via Skype.

Overall country based evaluation

The Covid-19 pandemic was quite an affront to the test-based culture of the United Kingdom. Conversations around cancelled exams and postponed Ofsted school inspections arguably took precedence over concerns about equity, access, and quality. Whilst some institutions were well-placed to pivot to online distance education, many were not, resulting in confusion and added stress; not just for educators and students, but also for their families.

It is important now, going forward, that institutions and educators are able to build upon new educational technology skills and knowledge. For many, this was a first foray into using online tools for teaching and learning, and additional institutional support to allow educators the time and space to develop these skills and learning materials, is particularly needed.

North America

Canada

Overview

As of May 11, 2020, Canada has 69,981 total confirmed cases, 4,993 deaths, and 1,121,629 individuals tested. With a population of 37.59M in Canada, confirmed cases represent 0.19% of all Canadians. Canada is divided into 10 provinces and 3 territories with Ontario and Quebec being the most populous. Ontario has 14.57M (39% of the Canadian population) and Quebec has 8.49M (23% of the Canadian population). Currently, as of May, Quebec is the worst-hit province with 38, 469 cases, representing 55% of all cases in Canada. Ontario has 20,546 cases, representing 29% of all cases in Canada. The prairie provinces of Saskatchewan and Manitoba have fewer cases (568 for Saskatchewan and 289 for Manitoba), while Alberta has 6,300. British Columbia on the West coast has 2,353 total cases. The northern provinces and territories are the least affected, but also have the smallest populations, followed by the smaller East coast provinces.

The first confirmed cases emerged in January of 2020. The overall reaction was fairly calm as government health officials reassured the population that the risk was low and there was no need to close borders or travel. As cases increased, and the government changed their stance and began

increasingly stringent measures to control the spread, the populace became more concerned and less trusting of the reassurances provided to them. While the Government of Canada has a strong publicly-funded health care system, health care is a provincial responsibility, so different provinces have taken different responses to the pandemic, which likely can be linked to how well each is doing today. Urgency accelerated in mid-March, which was around the time of school Spring break for most K12 schools. The pandemic was announced on March 11, which was the last day before Spring break in British Columbia. Some provinces asked residents to refrain from travelling during the break, while others encouraged its residents to keep their travel plans.

Canada has taken a measured response overall and began by requesting Canadians to self-isolate for 14 days on return from travel with no enforcement or tracking measures. Initially, as provinces slowly started announcing states of emergency, restrictions were first limited to large gatherings of over 500, then these caps were reduced slowly to 50 to down where we are today, where people are asked simply to "stay at home." Physical distancing was introduced, where Canadians were asked not to be within 2 metres (6 feet) of each other and the emphasis was on washing hands, and eventually we shut the borders and called all Canadians home. The Government of Canada has recognized that the "stay home" requests and physical distancing measures have financial implications on individuals, families, and businesses; therefore, they have announced relief in the form of $2,000 CDN per month for individuals and various loans and other aid for companies negatively affected by the slow-down from self-isolation and physical distancing. Canadians are asked to stay healthy through contact with each other via text, phone, and video as well as going outside for walks, provided they can stay apart. The size of the Canadian landscape and the relatively small population in relation to land in many parts of Canada has made this possible.

Reflections from the educational landscape

The K12 and higher education school systems suspended all in-class instruction according to various provincial timelines, but approximately a few days after the World Health Organization declared the pandemic on March 11. In the 2015/16 school year, which runs September to June, Statistics Canada reported 5,068,587 students enrolled in public elementary and secondary schools. While private schooling exists, the public-school system in Canada is highly regarded and, therefore, is dominant in Canada at both K12 and post-secondary levels. For the same time period, there were 2,034,957 post-secondary students enrolled in Canadian universities and colleges with 721,100 teachers, professors, and counsellors as of 2017. Canada had 353,000 international students with a valid study permit in Canada in 2015. Provincial governments recognized that schools provided a way for children to be cared for so health care and other essential workers could go to the important work that was required; therefore, some limited school instruction and daycare services were provided to those key personnel to keep our health care system operating. Surveys were sent home to K12 parents to determine who was an essential worker and whether they needed child care or school supervision to work. To make things more complicated, Canada has privacy laws federally, but also provincially, and most refer to the protection of individual privacy from the U.S. Patriot Act. This means public bodies must ensure citizen data does not reside on cloud-based servers outside of Canada. This issue has presented a challenge initially, but some provinces quickly enacted legislation to suspend these laws to support the use of these tools during the pandemic.

At the post-secondary level, in the January-April term, classes typically ended in early April with exams finishing near the end of April. With approximately three weeks of classes left, entire campuses were required to pivot to "alternative modes of instruction and evaluation for the remainder of this term." Many instructors were given choices that ranged from asynchronous to synchronous instruction and shifting assignments and assessments. Many universities recognized the problem that ill-prepared instructors would have in being able to successfully teach and assess digitally and for learners to learn successfully amid a pandemic. Concerns included, but were not limited to lack of, appropriate work environments, bandwidth, access to technology, childcare or eldercare, and simply the emotional response to the trauma of a pandemic. Domestic and international students may have returned home and yet still will be enrolled in classes, so time zone issues emerged. Learners were provided the ability to accept the final grade assigned by their instructor or to choose a "complete/incomplete" grade instead. Summer term courses continued to have in-person classes suspended and news releases are slowly emerging from universities that are announcing their Fall terms will be offered online, while some campuses are discussing ways to explore multi-access learning designs to prepare for the potential to mix on-campus and online modalities eventually in the hopes to begin to welcome some learners eventually back on campus. Whether that is optimistic or not remains to be seen.

While brick-and-mortar post-secondary institutions had some core tools to support a limited amount of online learning on site, expanding those to support the entire student population presented significant challenges. The end of the term presented some necessary quick acquisition of software or shifts in policies. Compared to K12, they were at least somewhat prepared, but the ratio of learning designers or technical support staff to instructors was suddenly very large and online learning expertise may have been lacking among senior leadership, given most campuses were focused on face-to-face education. Some campuses sought to reassign staff to support this pivot, without recognizing the role-based expertise that was required, while others took to mass hiring for these roles. The learning and teaching support centres on campus hosted online tutorials and workshops, both synchronous and asynchronous, but the execution varied by campus. Some were focused more on the tools, while others were focused more on the pedagogy of how to teach online. Given the widespread of the Canadian geographical landscape, many parts of our rural communities have limited bandwidth. Recognizing that many of our learners may have returned home to isolate with their families, there is a debate on the appropriateness of requiring synchronous connections for teaching and learning. That said, anecdotal reports from learners were that of isolation, confusion, and lack of motivation, which synchronous connections can potentially help with, but what we learned was that there is no one path that can work for all of our learners, especially those juggling multiple roles at home with no proper working environment. Unfortunately, K12 emergency remote instruction was even less prepared than that of post-secondary.

The K12 pivot to emergency remote education was much more challenging. Learners often had much reduced access to technology than postsecondary and the Ministry priority was getting food to the children who relied on school-based meal programs, followed by getting technology to those without or print-based solutions in the interim. While teachers with access to bandwidth soon had access to video technology, some did not make use of these tools and the teaching approach became posting content and assignments to learning management systems, while others simply posted assignments with instructions to “Google it” for the answers. The stress and anxiety of learners, who suddenly were not connected to their teachers, but not even to each other via the classroom, was significant and emerged via memes about being more stressed about school than the pandemic. Learners in some provinces were assured grades would only freeze or go up and would only go down should neglectful behaviour be evident. Overall, the reaction from both sides was that of overwhelm and we must be sympathetic.

Lessons learned

The struggle of the Canadian K12 and post-secondary education system to develop digitally literate teachers and learners has resulted in an exacerbated negative experience during this emergency pivot to remote teaching. That said, the focus on food and fairness was excellent. Prioritizing the access to food and crisis relief programs, options for a fair assessment, and efforts to provide technology to those who need it was the right call. Although there was a priority in messaging for mental health, the isolation and cracks in the pedagogy due to lack of digital literacy and knowledge of online pedagogy worked against this messaging. Because we do know that individual circumstances differ in terms of needs, we must look toward prioritizing personalizing modality to the preferences of the learner. Furthermore, educating all on how to design and participate in online learning as opposed to emergency remote learning is key. We need to expand capacity for education, support, research, and leadership.

Suggestions

Suggestions for policymakers: Canada has some of the world-leading researchers and practitioners in online and open learning. Unfortunately, this expertise is in pockets and, as a research and program area, has not been developed to meet the needs across every institution. Legislation should be developed to require educational institutions to develop a digital learning framework and policies, including stronger K12 curriculum for digital, networked, and open literacy, executive leadership specializing in online and open learning, certification for expertise, and digital learning chair positions to create new faculty positions at every post-secondary institution as a means to provide expert advice plus also the means to create and teach in programs that produce qualified personnel to support educational institutions. There must be a network to connect these area faculty and students to each other, especially as there tends to be only one educational technology faculty member per campus. It is not enough. Not for the future of education with the new normal of flexible online learning designs. Furthermore, a digital learning framework and related policies should address web accessibility, access to infrastructure (technology and internet for learners), professional learning, and ways to evaluate practices on campus and between campuses for equity as all learners in Canada should have equal

chances to learn well and to be supported. In order to evaluate, we need data. An investment in research faculty and research grants to collect data is necessary so we can know what is happening. Current anecdotal or case-based data is not sufficient. We need to collect descriptive data to know the status quo and more applied research to inform us of the weaknesses and strengths, so we can reach our fullest potential in this new normal. Policies must be informed by evidence.

Suggestions for schools/universities: Schools and universities need to increase the hiring of qualified learning designers and educational technologist roles, and the infrastructure they require. For the longer-term, there must be an increase in hiring of educational technology/online learning faculty members to develop programs to increase capacity in this overwhelmed field, as previously mentioned in the policy section above. Restructuring district/executive leadership to create a new role that specializes in online and open learning to be filled by a person with appropriate expertise in the area. There should certainly be professional learning in the area of tools, but beyond that, the focus should be on privacy and consent, intellectual property (Creative Commons, copyright, fair dealing, public domain), an understanding of pedagogy for different modalities (synchronous, asynchronous, multi-access learning, face-to-face), critical assessment practices, compassion-based teaching practices, online learning communities, and equity and inclusion.

Suggestions for educators are to teach with compassion. To take risks with new approaches and be flexible to support learner needs with the assessment. To support peer-to-peer connections and collaboration in various modalities that exist and not the modalities you prefer personally.

Suggestions for learners are to have compassion for their educators and peers. To take initiative to connect with others and to initiate self-design projects if helpful. Focus on keeping a routine, self-care strategies, and to learn how to advocate for their needs.

We recognize that it must be very hard for educators and adult learners who have no child/eldercare support and require it - or younger learners who lack the support at home to navigate emergency remote learning. We also recognize that the impact of these challenges will not be equal and may negatively affect women, low-income, and learners who are rural or have special needs especially.

Overall country-based evaluation

In closing, while the experiences within emergency remote education vary from province to province, from K12 to post-secondary sector, from teacher to teacher, and from learner to learner, everyone is doing their best in this unique situation, but more planning could lead to a more coordinated response in an uncertain future. It is critical that we expand capacity for: education to specialize in online and open learning, support for online learning and teaching, research to build up evidence to inform our policies and practices, and expert leadership to pave our way to a new future that will, undoubtedly, require more online and open teaching and learning as well as multi-access learning as we find ways to come together again gradually in person.

United States

Overview

The United States has the highest number of documented Covid-19 cases of any world country by far, exceeding 1.8M confirmed cases by June 2020 and climbing. It also has the greatest death toll, according to reports from the national Centers for Disease Control and Prevention (CDC, 2020). By early May 2020, the country was experiencing a plateau of around 30,000 new cases and 2,000 deaths each day. Considering the current U.S. population of 330M, including 56.6M students in primary and secondary (K12) schools and 19.9M students currently enrolled in American colleges and universities (National Center for Education Statistics, 2020), this pandemic has impacted everyone in every community and presented unprecedented challenges for students, families, and schools.

National news media began reporting and raising concerns about a yet unnamed serious viral illness affecting other parts of the world in early January 2020. And the first known case in the United States was confirmed the last week of January, just before the World Health Organization (WHO) declared a global health emergency on January 30, 2020. Since then, cases and deaths have exponentially increased throughout the country and particularly accelerated in mid-March and throughout April 2020. Concerns have been raised among U.S. residents about the federal government's lack of early

response, leading to assertions that a lack of caution and not taking this health threat seriously enough has been the most significant contributing factor to the record number of cases here. In contrast, while some people perceive this as a level of apathy from the federal government, state and local leaders are receiving criticism over what others believe is an overabundance of caution and unreasonable restrictions on social interactions, community events, business operations, and school functions. Some cities are even seeing public protests and revolts as tensions mount, uncertainty abounds, and unemployment rates climb. These societal stressors ultimately impact education as an integral component of American culture.

Broader decisions about education in response to the pandemic, such as school or campus closures and the subsequent necessity to rapidly pivot to alternative modes of instruction, have been communicated to students, parents, and families by school district superintendents and college or university leaders. These decisions have been informed by state mandates and recommendations from the CDC together with state and local public health departments. The timing of such decisions coincided with state governments issuing “stay-at-home” orders, social distancing requirements, restrictions on public gatherings, and shut downs of non-essential businesses. It is notable that the dates when education decisions were made during this pandemic were often linked with the dates when social constraints and economic or business restrictions were communicated by government authorities, supporting the interdependent relationship among these factors.

Reflections from the educational landscape

In late February 2020, school officials at every level began discussing more seriously the implications for disruptions in education and preparing for possible prolonged school or campus closures. Many K12 school districts started to communicate preparedness efforts to parents and families the last week in February, with the acknowledgement that the CDC at that time was expressing a low degree of concern associated with any potential spread to the U.S. Around this same time, many higher education institutions followed with their first official statements going out to faculty and staff at major public research universities the first few days of March 2020.

After the WHO characterized Covid-19 as a pandemic on March 11, 2020, the U.S. president declared a national emergency on March 13, 2020. This is the time when most colleges and universities began to take the situation more seriously, suspending all in-person instruction and requiring that alternative remote or online approaches be implemented. At the same time or within days of this decision, campuses were closed and faculty were also required to begin working remotely. Shortly after and throughout mid- to late March 2020, K12 school districts across the country also made the decision to close schools and move to emergency remote education with little advance notice. This required rapid and underprepared transitions for all teachers/instructors, students, and families, causing considerable stress and uncertainty. Yet, general feelings at this time were that this would only be a temporary measure, as decisions about closings were made for a period extending approximately two to three weeks in many cases.

These transitions required a change in the mode of delivery for traditional K12 schooling and previously on-campus college or university classes with little time to prepare. Decisions about instructional delivery modes have been localized and made by school district superintendents and school principals in K12 contexts as well as college or university presidents at individual colleges and universities. Most often in the U.S., the transition to alternative delivery modes has been framed at the macro level as a move to “online” teaching and learning in higher education and a move to “off campus” or “remote” teaching and learning in K12 education. This is how it has been referenced and communicated by school leaders to families and in the news media. The difference in phrasing is noteworthy because while educational systems in the U.S., especially K12, are often reluctant to use the phrase “online education” due to historical bias, online technologies are indeed being implemented for teaching and learning in all contexts. The level of effectiveness of this implementation, however, remains questionable and unfortunately reinforces previously held assumptions against the merits of online education. Distinctions must be made between planned and strategic online distance education efforts conducted with intention, versus the more accurate reality of what is actually transpiring as emergency remote education and learning. There is a marked difference that is not being acknowledged about the appropriate and time-intensive pedagogical and learning design efforts that are essential for effective online teaching and learning, as compared to the currently ill-prepared, rapid pivot to remote teaching and learning that is now happening in U.S. education due to a global health emergency.

At the micro-level, daily and weekly instructional decisions are often left to the teachers or instructors about what to do and how to do it. While this agency has some benefits, it also has serious problems because it may come with little initial guidance and even less ongoing support. The approaches that have been implemented for classes and programs in both K12 and higher education have varied among individual teachers and instructors, and there is a lack of consistency. In higher education, instructors have been encouraged to move their classes online and use synchronous and asynchronous Internet-based educational technologies, with the misguided aim to replicate on-campus learning experiences. Some instructors are still holding classes on their scheduled days and times using synchronous online video conferencing tools. Both instructors and students are finding this incredibly taxing in terms of their time and intellectual focus. Other teachers are integrating asynchronous technologies like the use of narrated slide presentations or video recordings to replace on campus lectures and discussion activities using a range of text-, audio-, or video-based educational technologies. In K12 settings, teachers are often left to make their own decisions for their content area and their students. Thus, approaches have been very different, with some teachers attempting to replicate the school day with an hour-by-hour agenda for their students to do schoolwork at home, while others have daily or even weekly tasks that students must complete on their own time schedule. Parents of school-aged children are finding it difficult to manage and support their children's educational needs and requirements, with many stepping in as pedagogical agents essentially homeschooling with little to no preparation or qualification to do so. Many parents are also raising concerns about the lack of technology devices or Internet access at home, as well as inadequate essential communication between schools, teachers, and families.

K12 schools also have the added challenge of addressing academic year instructional time requirements to achieve grade-level advancement and are lobbying for exceptions to be approved by state departments of education during this crisis. There is some concern that students may need to repeat grades or classes if they do not meet instructional time requirements or if they are not able to navigate the current challenges and achieve passing grades. As recommended by some (but not all) state departments of education, some American schools in grades K8 have made the decision to forgo required class assignments, assessments, and grading and instead are now providing non-required, ungraded "enrichment" activities for children instead. In such cases, formative versus summative feedback is being prioritized. Many high schools, universities, and colleges have also decided to adopt changes in grading processes, offering students the option to change the grading basis for each class from an A-F scale to pass/fail. Passing is most often equivalent to achieving at least a C grade (i.e., 2.0 on a 4.0 scale). Students have been warned, however, that this could potentially negatively affect postsecondary admissions processes and decisions as well as attainment of degree completion requirements.

Regardless of educational level, students across the U.S. are now expected to learn from quickly launched, emergency-based, technologically mediated and Internet-enabled, remote teaching. This presents a multitude of significant problems. And at its very foundation this expectation is grounded in the assumption that all students and families have access to devices and reliable Internet access in their homes while they are quarantined. This assumption is inappropriately privileged. If they have access, students at all levels are using their laptop computers or mobile devices (tablets, smartphones) to participate in online class activities, most often hosted and structured within a free (e.g., Google Classroom) or proprietary learning management system (LMS) (e.g., Canvas). However, not all students own personal devices and young children, especially, may not have the requisite digital literacy skills to make this sustainable. Mobile compatibility of websites and LMSs is often problematic as well and not all students can afford unlimited data plans, so these issues present additional barriers to digital equity that are also often being ignored.

Lessons learned

Regardless of the many localized changes that are occurring, educational approaches in the United States have universally relied most heavily on Internet technologies to mediate learning and communication between schools, teachers/instructors, students, and families. The ways in which people live and learn with technology has changed and will continue to do so. This pandemic has presented many challenges, barriers, and limitations on education, including learning with technology. But it has also illuminated many opportunities, benefits, and new possibilities. Right now educators and students are focused on getting through the academic year, which for most American schools and institutions will end in late May or early June, with some measure of success or at least as little additional harm as possible. But in addition to dealing with the present, educators must also look forward and better prepare for what lies ahead. These lessons provide a valuable opportunity to consider what has been done well

and what can and must be done differently in education in the future. This will require introspection but it also requires hope and some level of optimism to move forward in a positive direction.

When reviewing the range of approaches that are being taken to continue educational programming in K12 schools and higher education institutions across the U.S., what is most evident is that many educators are using technology now to attempt to do the same style of teaching with similar learning activities that they did before the pandemic and before schools and campuses closed. And in their attempt to replicate the traditional classroom experience, their teaching strategies reflect their educational values. For example, if they value lecture and objective assessment, they are currently delivering lectures and conducting exams remotely through technology. If they value inquiry-based learning and learning through discourse, they are implementing information sharing and discussion activities through technology. And if they value project-based learning, they are designing opportunities for students to demonstrate their learning through creative means with technology.

While there are numerous concerns associated with the current educational landscape in the United States, perhaps what is most immediately concerning for teachers and instructors has been the lack of time to adequately prepare, a lack of support, and a feeling of a loss of personal connection with their students. And what may be most concerning for students is that this has led to an often-problematic learning experience, adding to their stress and trauma. Even the most economically and academically advantaged students are experiencing a lack of consistency among their teachers or instructors and courses, as well as a lack of clarity about how to manage learning in this new format and the new challenges it presents. The challenges for the most vulnerable students in low-income families and students of colour are even greater; their stress is compounded by additional adversity and barriers to educational opportunity. They may lack access to reliable technology resources to do even the basic tasks that are required of them to receive information and continue with their schooling. But this disparity doesn't just include a lack of access to reliable technology devices or Internet connections. More importantly, this significantly impacts their ability to thrive during this time because it impedes their opportunity to pursue, actively participate in, and progress in their education. Access to education is a fundamental human right. And it is difficult to find hope or optimism in this situation unless digital equity is addressed and access is prioritized going forward.

Suggestions

Pedagogical challenges and larger systemic educational challenges have been exposed as a result of this pandemic. It is important to note, however, that all of these educational concerns must be contextualized in the broader landscape of teachers and students' lives while they are also managing family and financial strain, economic hardships, health risks or illness, the death of family members and loved ones, and fears about an unknown future. Teachers, instructors, students, and families are dealing with stress, trauma, grief, mourning, worry, and fear. And these things are not conducive to health and well-being, much less to learning. This important acknowledgement shines light on the ways in which education and learning are tightly woven into and influenced by our culture, our daily practices, our assumptions and biases, existing privilege or inequity, and the whole of our human experience. In times of crisis and always, education must attend to these issues and to the affective dimensions of learning as much as it attends to academic content and rigor.

Suggestions about ways to gain a deeper appreciation of these issues and to navigate current challenges more comprehensively can be informed by drawing on humanistic educational philosophy and American educational theorist John Dewey's philosophy of experience. Humanism as a learning theory prioritizes human experience and supports a holistic appreciation for both the emotional and cognitive dimensions of learning. Acknowledging learners' lived experiences is critical in education because as Dewey (1938) noted, experience is the most important source of learning, for better or worse. So as educators consider how they will deliver instruction, help support students, or choose educational technologies to use, they must also consider students' experiences (both inside and outside of class) and attend to their life circumstances and feelings of stress and trauma. American feminist scholar Bell Hooks (2003) advocates for a pedagogy of care and empathy in meeting students' needs and attending to their life situation. This is not an easy task, as she also discusses the emotional labour of teaching. But it is important to keep in mind that students' most salient memories of their educational experiences after this pandemic will not be about the specific academic concepts they studied. Their memories will be filled with how they felt and how they were treated and cared for (or not) during this time of crisis.

On the positive side, this pandemic and the move to emergency remote education is also beginning to more brightly illuminate the possibilities and potential that technology holds for learning when, first and foremost, equitable access and opportunity is ensured for all and then when human connections, communications, collaborations, and creativity are prioritized in education. And there is something to learn for everyone involved. Hooks (2003) also advocates for opportunities inherent in "classrooms without boundaries" (p. 13), which is relevant now. This refers to openness in where and when learning takes place, how knowledge and skills are demonstrated and evaluated, and resources that are privileged and purposed for education. Open educational resources provide rich, diverse, and more equitable access to content. And if educational technologies can be more effectively integrated during this pandemic and beyond, this also holds the potential to bring more creative ideas to the work of teaching and learning, including teaching and learning with technology. For teachers/instructors as well as students who may not be as familiar or comfortable with technology, this forced shift has required that they try new educational strategies and learn new ways of doing and being online. For those who are already very comfortable and experienced with technology, it has also presented the possibility for introspection about their usual practices, deeper or refined philosophical understandings, and new discoveries.

To this end, educational leaders and policymakers must proactively develop a vision for the future and a strategic plan to support more effective and robust online distance education initiatives at every level. Many U.S. teachers/instructors, students, and families are feeling worried and hopeless. With the challenges and stressors that exist, hope is needed to intervene on what the future holds. Paulo Freire (1994) suggests that "without a vision for tomorrow hope is impossible" (p. 45). And Hooks (2003) builds on this by offering that, "Our visions for tomorrow are most vital when they emerge from the concrete circumstances of change, we are experiencing right now" (p. 12). This work cannot wait as this academic year in the U.S. comes to an end and the next is just on the horizon. We must now comprehensively examine and critically analyze the current situation, what is working and what is not, and begin planning ahead with a strategic vision.

In this vision, funding must be prioritized and planning must begin as soon as possible for intensive professional development to train teachers and instructors in digital pedagogy and learning design that is uniquely necessary for online distance education and the use of educational technologies to support a more effective and humanized online learning experience. Technology integration specialists must be retained or hired for K12 schools to support teachers, and instructional designers must be retained or hired in colleges and universities. These individuals are commonly seen as less essential than teachers or instructors, so funding is being cut in these areas and many are currently losing their jobs while schools and universities are instead choosing to contract with large, for-profit corporations to develop and manage their online programs and new initiatives at tremendous expense. Policymakers and educational leadership must reconsider these decisions and invest in existing human resources.

Overall country-based evaluation

This pandemic has affected every resident in the United States and has permanently altered the educational landscape in ways we already see and in ways we cannot yet imagine. Teachers, students, and families have experienced and will continue to experience considerable loss. They will have navigated economic, social, and educational obstacles, with some failures and some successes. The current use of and dependence on technology for education will provide opportunities for introspection and insight. Indeed, this crisis can be a generative opportunity to examine lessons learned with a critical lens and consider how educational practices can and must continue to change. The key to positive change will be to approach this with a deeper understanding, compassion, hope, and optimism.

U.S. educators, policymakers, schools, and universities must continue to reconsider educational traditions that may no longer be possible or appropriate and dogmatic adherence to historical notions of what constitutes education, instruction, and learning. Technology opens up new possibilities to lift limits on teaching and learning and to make new things possible in terms of education that is imbued with care, empathy, and human connections. It is our collective responsibility to leverage the affordances and great potential that educational technology holds to continue to shape educational institutions and practices in positive, productive, and meaningful ways but to also ensure that access is open and equitable for all.

South America

Argentina

Overview

Argentina quickly moved to work from home, and all services except essential services were closed. Police have been fining people for failing to meet social distancing requirements and travel restrictions. The government has told people to stay home. People cannot go out and exercise except for compassionate reasons, such as bringing food to older family members. People over the age of 60 are considered vulnerable and are asked to stay in their homes, in complete social isolation. Public health messages have also been consistent about washing hands and staying home if it's not okay. We have successfully flattened the curve and Covid-19 cases have dropped dramatically.

Government financial support for welfare recipients (i.e., informal workers, unemployed, universal child allowance, and low-income students) was well received and provided great relief and certainty for many Argentines. Other economic stimulus packages aimed at supporting companies have also been well received but are proving more difficult to implement fairly.

Argentina has an estimated population of 44M people. This includes 8.7M students registered at the primary and secondary (K12) level and 3M students in higher education (DIEE, 2020). It is worth noting that in the country, entrance to the University is unrestricted and free for all those who want to enter.

Reflections from the educational landscape

Argentina is a federal country, so the responses from each of the provincial states have been different. Overall, we can find great strides. Schools, teachers, students and homes came out to support the need for pedagogical continuity with the technological and pedagogical devices they had. In this sense, it was observed that the proposals for educational content reached the homes through different means. This includes desktop computers, notebooks, smartphones. Netbooks are also being used, although since 2015 free netbook delivery programs that had reached approximately 5 M homes nationwide have been discontinued. Video conferences were implemented, and the teachers also posed innumerable tasks for the students to carry out. In this sense, the social, economic and cultural resources of each household is key in the management of this pedagogical mediation.

The economic, social, and cultural inequalities that unfortunately became habitual and regular in the country are strengthened with Covid-19. Some households do not have access to Wi-Fi or computers, and they cannot go to the community centers or public libraries that formerly had these services for education.

Although a rapid response to the contingency began in K12 education, different responses were found between the management of public and private education. In the private sphere with greater availability of financial resources, schools were able to set up Virtual Teaching and Learning Environments that provided better support for content, video conferences, and communicative mediation between teachers and students and even among students themselves. However, public schools and most of the provincial jurisdictions had not implemented and facilitated these Virtual Environments of Teaching and Learning to the educational community. For households that did not have Wi-Fi connections or access to data, the MoE programmed various significant strategies. This included ten hours per day of educational programming on television, public radio, and open state radio that has coverage throughout the country, without requiring access to the need for any type of economic subscription. Additionally, nine booklets with various educational content booklets were published that update their content monthly and more than 15 M copies were distributed in a first stage.

While for universities, the behaviour has been quite homogeneous in one sense in the face of the pandemic contingency. The general response has been to try to generate proposals for the face to face academic to offer Learning Management System (LMS).

The studies of more than thirty years of history and the existence of the Red Universitaria de Educación a Distancia Argentina (RUEDA). The experience of the education and technology teams in public universities, the validation of the Institutional Systems of Distance Education of more than 80% by the Secretariat of University Policies. The evaluation and recommendation of the University Evaluation and Accreditation Commission were favorable conditions that allowed the universities to go out to give

management mechanisms of the pedagogical option at a distance satisfactory to the contingency (Ambrosino & Aranciaga, 2017).

With the provisions generated by the universities, the increase in activity in the different LMS was exponential. Trainings for teachers and students were established in virtuality. Virtual classrooms were created in institutional LMS, and the technological infrastructure was configured and expanded. Additionally, a reprogramming of the academic calendar was established, adapting it to the circumstances of the pandemic, and new mechanisms and formats were established for the evaluation of learning. Teachers and management groups continued their activities from their home office, including virtual meetings and sharing documents. It is also important to note that an agreement was reached with Ente Nacional de Comunicaciones (ENACOM), the entity that regulates communications in Argentina so that users who enter <edu.ar> portals could access it for free.

Lessons learned

The commitment made by managers, teachers, students and households to contribute to the generation of pedagogical continuity is interesting. Although many of the teachers and students did not have training in pedagogical virtuality, they tried to obtain skills and abilities in the new digital environments.
The main problems to highlight are the low availability of technologies (Wi-Fi connections and computers) as well as the time management of teachers and students. The homes are overwhelmed for the amount of activities that boys and girls have to do for school, while teachers are overwhelmed in carrying out activities in a new format, including correction and return of these activities.

Currently, since the school term began in Argentina on March 2, 2020, and total confinement began on March 16, 2020, the subject of evaluation is beginning to be discussed. The strategies for evaluations have not yet been agreed upon, but a suspension and extension of them is envisaged.

Suggestions

Suggestions for policymakers: Public policies must be aimed at generating training for teachers and students in virtual culture in addition to facilitating and having access to Wi-Fi connections and technological devices.

Suggestions for schools/universities: Schools and universities have to generate new time management in the distance pedagogical option. The novel arrangements of times and spaces in the pandemic require innovative organizations.

Suggestions for educators: Educators are suggested to focus on their pedagogical and disciplinary knowledge and then, from them, analyze technological availability in order to implement the pedagogical proposals they wish to make. For learning activities, it is suggested that teachers propose a greater number of collaborative actions where the virtual meeting of students is encouraged.

Suggestions for students/learners: The main suggestion is to generate a study routine and activities aimed at autonomy. On the other hand, students should also be encouraged to share the knowledge, problems and doubts that appear to them with their colleagues. Collaborative activities are extremely important to ensure the student community is active and maintained during social isolation.

Overall country-based evaluation

The virtualization processes of education projects in the framework of the pandemic create the need for institutional management to review the missions and functions assigned to certain structures and to propose an action with an innovative imprint. The definition of organizational structures and academic actions that allow responding to the new roles that virtualization requires is one of the central questions to evaluate the viability and development of a new type of project.

The promotion of virtuality in education implies a strategic thinking process in which the roles of the different agents are redefined, new functions and units are created, or functions and meanings are recreated. This implies that the educational model is conceptualized again, with a restructuring of the routines and administrative processes as well as educational design and production processes. Therefore, we see technology, organization, and pedagogy as a triangle of factors that are closely related in an articulated and integrated way.

Education will be virtual insofar as it knows how to be a reality in a different mediation. It will vary its educational and organizational model that will make explicit the new pedagogical, communicational, technological and institutional dimensions that virtualization requires. An appropriate balance between these dimensions is necessary in the development of a virtualization initiative based on an institutional trajectory of proposal management.

Brazil

Overview

Brazil is a vast heterogeneous country with a population of over 209M inhabitants (World Population Review, 2020). With regards to its educational system, there are roughly 150,000 public basic education (K12) institutions in Brazil (Instituto Nacional de Estudos e Pesquisas Nacionais, 2018a). The 2018 school census revealed that 77.84% of the basic education high schools are public. Of this total percentage, only 22.16% are private (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, 2018a). In terms of higher education, 2,537 institutions are public and 2, 238 institutions are private (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, 2018b).

On March 11, 2020, due to an increasing number of Covid-19 cases, Brasília was the first state to establish social distancing measures and its governor by means of a decree suspended all public and private school classes for five days (G1, 2020). Two days later, all services considered non-essential (e.g., religious services, cultural events, shopping centers, restaurants, bars, stores, beauty parlours) were ordered to shut down. The state of São Paulo and Rio de Janeiro took similar measures shortly after and quarantine went into effect in other states as well. Quarantine and social distancing measures were taken to flatten the curve in order to avoid the collapse of the public health system. Initially, quarantine and social distancing measures were successful with full compliance of the population. Although quarantine has been extended to June 15, 2020, in cities that have the highest daily death toll, subsistence is a great concern to the disadvantaged portion of the population that is unable to remain in social isolation. This is because there are earning disparities between workers with different levels of educational attainment, which means that there are large income gaps for people whose highest level of educational attainment is basic education (OECD, 2015). To make matters worse, “President Jair Bolsonaro’s insistence that it is just a ‘little flu’ and that there is no need for the sharp restrictions” (Chicago Tribune, 2020, para.1) has led many Brazilians to downplay the severity of the virus. This fact has resulted in the rates of social distancing dramatically decreasing in the city of São Paulo, which is the epicenter of the disease.

Reflections from the Educational Landscape

With K12 public schools shut down across the nation, representatives of the National Council of Secretaries of Education (CONSED), the Union of Municipal Leaders of Education (UNDIME), the National Council of Education (CNE) and the National Fund for the Development of Education (FNDE) in partnership with the Ministry of Education (MoE) met to discuss viable alternatives to offer alternative remote or distance education (DE) teaching and learning strategies during this period. Strategies proposed by states, namely Amazonas, Acre, Mato Grosso do Sul, Rio de Janeiro and São Paulo, included establishing partnerships with open TV channels; offering live video classes; using LMSs, Google Classroom and Mobile Apps to deliver pedagogical content and activities (Porvir, 2020). It is important to note that until the Covid-19 crisis, the Brazilian legislation did not allow DE courses for early childhood education and elementary education (grades 1-9). This modality is allowed for up to 30% of the high school hours in evening courses and 20% in day courses. In the higher education sector, up to 40% of the school workload can be done online. Most of these strategies only began to be implemented at the end of April 2020. This meant that students in the basic education public school system lost at least 200 days of schooling. Municipal schools in late April 2020 began to receive printed didactic workbooks aimed at elementary school students, which parents needed to pick up at the schools and these students were pretty much left to their own devices to learn. Private schools, on the other hand, decided to teach students using WhatsApp; video classes were recorded on school premises with the teachers using conventional blackboards; and Zoom or Skype were used for synchronous classes. Students were overloaded with tasks and activities and had to resort to their parents for help in all disciplines. This placed a heavy burden on both parties. Students reported being bored with lecture-based classes. At the beginning of May 2020, private schools gave their students a two-week break so that they could better prepare for online teaching and learning. Vacations in July were cancelled for all K12 schools.

Three renowned public universities suspended classes during the first semester of 2020 arguing that practical lessons cannot be substituted by DE (G1, 2020). They also maintained that not all teachers and students have access to technology and WI-FI connectivity (G1, 2020). Thus, these institutions plan to make up for the lost school days when the pandemic is over (G1, 2020). Conversely, private universities continued delivering online classes and stated they would not reduce the monthly tuition since their expenses are expected to increase due to the instalment of new technological equipment, training of faculty and purchasing of software licenses that would enable them to deliver online classes (G1, 2020). Instructors from the public higher education sector contacted the Teachers Union because they are resistant to teaching online (S. Telles, personal communication, April 30, 2020). This appears to indicate that they either lack the necessary skills or think they should earn more. Student's reactions varied from enjoying the option of studying at their own pace and time to those who did not possess the discipline nor the autonomy to do so and thereby felt overwhelmed and/or lacked motivation.

Lessons Learned

According to a recent survey conducted by TIC Domicílios (2018), 93% of the households possess a smartphone, 96% possess a TV and 20,6% of the households in urban areas and 53,5% in rural areas do not possess any Internet access. Lack of Internet access highlights issues such as the digital divide, accessibility, social inequality, and lack of infrastructure to learn and study online. Consequently, strategies proposed to address the learning needs of K12 public school systems appear to be sound as long as instructional materials are well-sequenced, didactic and engaging. Providing Municipal public-school system students with printed didactic workbooks may prove to be a failure if teachers do not provide the necessary pedagogical support. As most parents need to work, there should be mechanisms in the place that ensure that instructors maintain regular contact either via telephone or via technology to assist students with their studies in this scenario. Teachers need to find ways to re-establish some kind of personal connection with students to help them with their doubts and concerns.

DE at the K12 level represents a very new model of educational delivery in Brazil. Despite the tremendous surge in DE in the last decade, especially in higher education, there are still stigmas attached to the quality of online courses. These stigmas compounded by lack of knowledge among teachers about how to use Information and Communication Technologies (ICTs) (OECD, 2015; Pelgrum, 2001) are obstacles that need to be overcome to ensure effective course planning, design, delivery, tutoring and the appropriate use of varied technologies for educational purposes. Thus, faculty and students must be properly trained for this modality otherwise academic institutions are at risk of replicating traditional face to face teaching and learning in the online environment.

Suggestions

Suggestions for policymakers include flexibilization of academic norms and requirements. Students who do not have any access to the Internet should be allowed to take face to face exams once the pandemic is over. The technology used should be easy to navigate, be user-friendly and contain gamification to improve motivation and engagement. Lastly, federal, state and municipal governments should provide the necessary funding for infrastructure and/or other resources to ensure effective delivery of emergency remote education nationwide.

Suggestions for schools/universities include: (a) Elementary school students and their parents should be provided with a list of activities and exercises, didactic sequences, and learning trails by flow of complexity related to skills and learning objects. Parents should also be provided with guidance to carry out activities related to the learning objectives and skills of the curriculum proposal and on the organization of daily routines to better equip parents in aiding and accompanying learners' progress; (b) Middle and high school students, due to the fact that they possess more autonomy, should be provided with multiple opportunities for project-based and problem-based learning. These student-centered approaches help students acquire a deeper knowledge through active exploration of real-world problems and challenges; and (c) University students should be encouraged to participate in online classes in order to increase their autonomy and learn new skills and tools, which will better prepare them for the job market requirements.

Suggestions for educators include providing pedagogical support and training teachers and students to use ICTs. Training is imperative due to the fact most teachers and students lack skills with ICTs. Educators should teach students how to use technology by providing clear, real examples or screenshots of how the technology will be used. They should also talk about time management with

their students, especially for asynchronous classes. A calendar with activities should be provided so that students can organize their studies.

Suggestions for K12 learners/students include learning how to organize their time and studies according to a calendar and establishing activities in order to optimize their learning. It should be recognized that DE can help prepare them for higher education in addition to providing them with remedial classes in the near future.

Overall country-based evaluation

It is difficult to evaluate the overall impact of emergency remote education in Brazil- it will require longitudinal surveys and ongoing formative and summative assessment due to the range of varied experiences and factors (e.g., access to infrastructure and devices, ICT literacy of teachers and students, the emotional and economic impact of crisis) influencing the success of these varied experiences. Emergency times call for emergency action plans that may present themselves as new teaching and learning opportunities. There is hope that these opportunities foster more inclusive and equitable systems across all educational levels. Although the learning curve will be steep, for K12 schools this may be a unique opportunity to become skilled in ICTs and implementing blended learning when the crisis ends. For universities, this will also be an invaluable opportunity for them to increase learning effectiveness in DE programs. In times of emergency remote education, we may witness collaborative, cooperative, interactive, participatory, and hands-on learning, which may be more conducive to OER uptake. To conclude, as Litto (2020) upholds everything indicates that the term “distance education” will disappear in the near future because there will be a healthy overlap of modalities: almost all courses today considered “face to face” will have “non-face to face” or “virtual” elements ... and many distance learning programs will have, to increase the effectiveness of learning, face to face moments (para. 11).

Mexico

Overview

Mexico is a Latin American country located in North America with a total area of nearly 2M square kilometers making it the 13th largest country in the world and the 10th most populous. With a population of 126.5M, Mexico is the largest Spanish-speaking country in the world. This Federal Republic, borders South with the Central American countries of Guatemala and Belize, and north with the United States. By early May 2020, it was the country with the most confirmed cases and fatalities due to Covid-19 in the world.

The Covid-19 Pandemic in Mexico arose as of February 27, 2020, with the first confirmed case in Mexico City pertaining to a male patient who had travelled to Italy and was exhibiting mild symptoms. A few hours after the official announcement of the first case, health authorities further confirmed another case in the Western State of Sinaloa and a third case, again, in Mexico City. The first death due to Covid-19 in the country occurred on March 18, 2020.

It is important to observe that Mexico’s Health Ministry made it a foundational axis of its response strategy to maintain an open channel of communication with the media and the general population by sustaining a daily one-hour evening press conference held at the national headquarters of the federal government, kickstarting the daily format on March 1, 2020. At the time of writing, over 87 evening press conferences had been held, the vast majority of these being led by the now notorious Undersecretary of Prevention and Health Promotion and Johns Hopkins educated epidemiologist, Dr. Hugo López-Gatell Ramírez. Since early January 2020, Dr. López-Gatell decisively played a major and very public role as both a spokesperson and leader of the task group in charge of designing, instrumenting, and directing Mexico’s response strategy to the Covid-19 epidemic.

It was precisely Dr. López-Gatell who on March 11, 2020, made a public announcement stating that the contagion rate in the country was tripling even if the absolute number of confirmed cases was still relatively low, at only 12 cases. The tripling of the contagion rate signalled the beginning of the community transmission phase – in contrast to the initial phase of the epidemic characterized by imported and relatively easily traceable cases - and prompted the first official call to the population for taking social distancing measures. It should be noted that even if the most detailed governmental measures for Covid-19 response were announced throughout March, constant communication efforts

on the part of the federal government were made since January 2020 when the situation in China was first accelerating.

It was precisely during a press conference held on January 20, 2020, that the Undersecretary of Health, accompanied by various prominent members of Mexico's Health Ministry including Dr. José Luis Alomía Zegarra general director of epidemiology, outlined Mexico's mitigation strategy for facing, what in their view was a foreseeable acceleration of the global contagion rate of the novel coronavirus, sars-Cov-2.

In a country with 52M people in poverty conditions, a number that amounts to a rough equivalent of 41.9% of its population and in which out of every 10 workers 6 make a living via informal economic activities, opting for a complete shutdown of all economic activities and a strict confinement policy was not viewed as a feasible strategy on the part of health authorities, to say the least (Consejo Nacional de Evaluación de la Política de la Política de Desarrollo Social, n.d.). Therefore, the mitigation efforts to slow down the contagion curve focused since mid-March on modifying the structural conditions that motivate people to leave home, namely attending school and commuting to work.

With 30.6M students attending mandatory education levels and over 1.5M teachers distributed in over 244 thousand education facilities in a country with Mexico's surface area, designing and putting in place an effective Covid-19 response on the part of both private and public education sectors posed a significant challenge since the very beginning. The total population of 30M students in Mexico is divided up as follows: 4.8M children attend "preescolar" or the equivalent of kindergarten education, 14M attend "primaria" the equivalent of 6 years of elementary school, while 6.5M attend "secundaria" or 3 years of junior high school. Finally, 5.2M attend "preparatoria" or high school.

As for teachers, the vast majority, 981 thousand teach in elementary and junior high school, while 238 thousand teach in kindergarten and roughly 299 thousand teach at the high school level. Out of 30.6M students in K12, over 3.6M attend private institutions. Of the 1.5M teachers, 274 thousand work for the private education sector (Instituto Nacional para la Evaluación de la Educación en México, 2019). Conversely, 3.7M students attend public universities in Mexico, while 1.8M attend private universities (Sistema Nacional de Información Estadística y Geográfica, 2018). Public education institutions in Mexico provide university education to 70% of all university students even though they represent a third of the 3,762 university institutions in the country (OECD, 2019b).

To the overall outlook in terms of the size of the population that conventionally attends school at different education levels, one must add a series of nuances product of the large inequalities that characterize social reality in Mexico. Inequalities in Mexico run deep, and touch areas as varied as access to and quality of education services, unequal access to basic services or gender-based inequalities. Phenomena, such as the impact criminality and violence have, present important variations even within metropolitan areas. By looking at how the Human Development Index of Mexico drops from an overall 0.767 to 0.595 when adjusted for inequality, one might begin to understand how living conditions and the satisfaction of even the most basic needs differ greatly throughout the Mexican geography (UN Mexico, 2019).

On March 14, 2020, with 41 active cases, the Ministries of Health and Public Education of the Federal Government of Mexico announced the implementation of priority prevention and care measures based on various recommendations of the World Health Organization. Initially, a call to suspend all face to face activities in education centers around the country from March 23 to April 17, was made. Suspension measures in the education sector were to be revised after the spring break (April 6 to April 17). Overall, the Mexican mitigation strategy was since the beginning heavily reliant on the suspension of all face to face activities in the education sector. This suspension contributed to the demobilization of 35 to 40M people and also had a positive effect on the general reduction of, for example, urban mobilization, since it eliminated otherwise necessary commutes to education centers via both public and private transport.

Two weeks later, on March 30, 2020, with 1094 confirmed cases and 28 fatalities, the Mexican government formally declared Covid-19 a sanitary emergency and called for the following measures to be put in place: suspension of all non-essential activities in the public, private and social sectors until at least April 30; in essential sectors, meetings of more than 50 people were forbidden and basic hygiene, prevention and social distancing measures were ordered; the entire population was encouraged to comply with a voluntary limitation of mobility by staying home. In addition to these measures, private sector companies were asked to contribute to the demobilization of the population by making the necessary adaptations for remote work. Finally, home isolation was strongly advised to people over 60

years of age, pregnant women and people with chronic or autoimmune diseases (Gobierno de México, 2020b).

Moreover, the national population census was postponed until further notice and a firm announcement that all mitigation measures were to be applied with strict adherence and respect for human rights was made. Since very early on the possibility of the use of police and military forces to enforce strict isolation measures or curfews, was consistently dismissed by different federal government spokespeople.

Reflections from the educational landscape

In the Mexican case, universities were the first to announce a temporary suspension of activities. As early as March 12, 2020, a few universities announced their intention to cancel all education and university life activities, effectively shutting down their facilities one week before the recommended date for class suspension proposed by the federal government. Tecnológico de Monterrey, a prestigious private university in Mexico, with 26 campuses located in different cities, was the first to announce it was cancelling all in campus activities (Tec de Monterrey, 2020). Its announcement followed a series of press releases from both private and public universities in Mexico stating their own plan for cutting back on face to face activities.

In its initial statement, Tec de Monterrey, outlined its intention to dedicate the week of March 15th, to the design and kick start of the adaptation strategy that would allow it to migrate 50 thousand class sessions per week to an online distance education format. When the mandatory closing of education centers came, various public and private universities in Mexico were indeed able to draw from their previous experiences in virtual education. Universities such as the National Autonomous University of Mexico (UNAM), University of Guadalajara, Tec de Monterrey and various others higher education institutions had for years been, although in varying degrees, worked on strengthening their capacities for distance, online and virtual learning; however, no efforts conducted before could have prepared the Mexican education system, to meet the new educational demands which resulted from the massive demobilization of the student population in Mexico.

By March 23, 2020, the Mexican Undersecretariat of Higher Education published a series of Covid-19 action guidelines in which universities were asked to: either create or strengthen national repositories of education materials that if shared could serve different educational institutions; consolidate communication channels with their students and professors; suspend face to face activities and continue education activities privileging the remote teaching route. In the case of public universities, the Ministry of Education recommended they made use of television channels and radio stations for broadcasting lessons and educational shows. There was also an important call for intercultural universities to prepare, in coordination with the National Institute for Indigenous Peoples, materials for dissemination, in indigenous languages, of preventive measures concerning Covid-19.

Due to the extension of social distancing measures well into April and May 2020, the Ministry of Education launched the initiative *"Aprende en Casa por TV"* i.e. learn from home on TV. The *Aprende en Casa* program for online viewing and TV broadcasting was indeed recognized by UNESCO as a valuable effort on the part of the Ministry. Starting on March 23, preschool, primary and secondary school children were able to watch educational shows and lessons broadcasted from Monday to Friday on UNAM's and Once TV, television channels. Government estimates indicate that from March 23 to the beginning of May, 11M children were reached via this initiative (Secretaría de Educación Pública, n.d.).

In a complementary effort and due to the vast inequalities in terms of internet connectivity existing in the country, the National Institute for Adult Education (INEA) and the National Council for Educational Development (CONAFE) delivered 300,000 packages of hard-copy school materials in an orchestrated effort to reach students in isolated communities with no access to television or the internet.

For the most part, academic continuity plans in different education levels included a combination of synchronous and asynchronous delivery modes. In places with less connectivity, adaptation strategies relied heavily on the role of teachers and their efforts to communicate with parents and provide them with a schedule of activities and topics to be revised with students. As the pandemic spread, the focus on preschool activities shifted from asking parents, mostly mothers, to help their children perform traditional "learning" activities, to suggesting parents they guide their children in activities centered on their psychosocial well-being. An important aspect of concern that arose very early on and a difficult one

to resolve was indeed the monitoring of the physical and emotional health of children living in communities hardly hit by criminal and drug-related violence.

Given the enormous connectivity differences even within metropolitan areas, the most basic technological means of maintaining communication between teachers and parents was the use of the messaging app, WhatsApp. School guides and instructions for activities started to be customarily sent out via WhatsApp by the end of March. This meant that both students and parents were asked to send photographs, voice notes and written messages as evidence of their schoolwork in cases where no learning platforms were available.

Contrary to this reality, in other education centers both public and private the use of learning platforms such as Moodle, Blackboard, Google Classroom or Canvas surged. Webex, Facebook Live, Instagram Live, Google Hangouts, Microsoft Teams and most notably Zoom were widely and rapidly integrated into the new teaching schemes of various institutions. Differences in access to communication technologies that enable remote and live online teaching proved to be staggering.

Lessons learned

The Covid-19 pandemic brought to the surface the deep inequalities which have for decades engulfed large sectors of the Mexican population. The efforts made for academic continuity in Mexico constitute a vast myriad of initiatives that reflect the profound polarization of living conditions in this middle-income country. The underlying dynamics of violence also burst into the scene, leaving children and youngsters deprived of the safe haven that their schools somewhat represented.

Additionally, while top universities in Mexico, some of those even top universities in the world, saw no major actual disruption in their teaching activities and were mostly concerned with furthering the technological training of their professors, the majority of the student population in Mexico saw its education activities disrupted in significant ways.

Furthermore, one must note that many of the continuity strategies particularly at the K12 level exhibited a salient gender bias, making mothers, even if implicitly, the ultimate substitute teachers in their households. One aspect is clear, the arena of education is one in which economic, social and family dynamics converge, making the design of good-enough transversal strategies a very complex although unavoidable task.

Suggestions

For policymakers:

- Emphasize the design of truly comprehensive and cross-sector public policies for the long term and not only for emergency response.
- Favor the integration of information databases into the education strategy in order to provide better-suited psychosocial and emotional care to students and their families.
- Shift part of the focus from the continuity of education and completion of study plans to the actual human sustainability of such continuity efforts. Emotional and psychological health ought to occupy a preponderant place in the continuity efforts.
- Seize the opportunity to open investigations and formally charge past or current officials and civil servants who have committed acts of corruption or are suspicious of misuse of education and health sector funds.
- Make a public commitment to increase the percentage of GDP destined to the education sector. It is time to leave behind decades of underinvestment in education.
- Explore the possibility for new synergies and alliances between public and private institutions at all education levels. New schemes of collaboration not based on economic remuneration between education institutions could open up new possibilities for true solidarity in the interest of all students.
- Communities torn by violence require specific education continuity policies that make it a priority to monitor the well-being of students.

For schools/universities:

- Invest heavily in caring for the emotional and psychological health of students and teachers.
- Make the necessary adjustments in conventional processes that might be disproportionately affecting emotional health in your community.
- Voluntarily engage in best practice sharing and “visiting professor” schemes between public and private education institutions.

- Make it your mission to have a long-term view that rescues the social role of education. Review your curricula and make sure there is a strong emphasis in citizenship formation, peace education and human rights education principles and make sure you are contributing to gender mainstreaming overall.
- Value professors and students whose main skills might not be technological. Create buddy programs that help them migrate to a more technological setting that supports, rather than changes the strong teaching and learning abilities which they already possess.
- Take advantage of the lessons learned from emergency remote education and design strategies to reach out to your extended community in innovative ways from now onwards.
- Make a conscious effort in reducing the gender bias in the involvement of parents in all matters related to their sons and daughters education at all instructional levels.

For educators:

- Keep in mind the importance of the social role you fulfil. Review if in your emergency remote education strategies, you are still educating in equality, non-discrimination and social justice.
- When designing your online lesson, keep in mind significant learning is best guaranteed when you are able to provoke different emotions in your students. Ask yourself how you can do that via remote teaching.
- Choose a couple of education technology software/tools that make you feel comfortable. Organize best practice peer-sessions that might inspire you to learn new skills.
- Encourage your students to learn in different ways by designing off-screen learning activities.
- Help your students make sense of the pandemic and the social phenomena accompanying it. Take time to talk to them about the overall state of the world.
- Encourage your students to think about how they would design different futures for their communities and countries.

For learners/students:

- Maintain close contact with your teachers and fellow students.
- Privilege your emotional well-being, if you are struggling to make it clear to someone.
- Share your point of view on the state of world affairs.
- Think of what alternative futures we ought to design departing from the struggles your country has gone through in this pandemic.
- Honour the gift that uninterrupted education is by continuing to engage in your learning process.

Overall country-based evaluation

In Mexico, the overall coordination and collaboration of not only health authorities in the country but also that of other relevant ministries and governmental institutions, in the design of a more comprehensive overall response to Covid-19 resulted in an approach to the epidemic that was far more cross-sectoral than the 2009 response to the H1N1 pig flu epidemic. It is interesting to note that education institutions in Mexico were not only asked to focus on the continuity of education at all levels, but were integrated, albeit in varying degrees into the actual response to the epidemic. Research centers and academics were invited to: provide solutions for improving hospital preparedness; design better guidelines for the emotional and psychosocial care of the population; or even contribute with their own made in Mexico designs for ventilators and other medical materials. These efforts strengthened the overall policy response in face of Covid-19.

The Ministry of Health made an important effort in maintaining daily communication with the population through various strategies. Daily evening press conferences constituted a crucial part of the social communication strategy of the government. In dozens of conferences, issues such as mental health, the prevention of gender-based violence or patient humane attention guidelines were touched on. This communication strategy facilitated the visibilization of issues such as social inclusion, mental health or domestic violence in the midst of the pandemic, by the press. In addition to this strategy, the federal government launched a microsite dedicated to host relevant materials in relation to Covid-19, including a series of videos to explain the pandemic to children and strategies to help them cope with social distancing measures. The microsite also made open data available for download so that independent researchers could verify, and model data directly provided by the National Epidemiological Surveillance System (Gobierno de México, 2020a).

Concerning the sociopolitical environment in Mexico, the most important struggle proved to be the combat against an *'infodemic'* of widespread misinformation and fake news. Unfortunately, the political instrumentalization of the epidemic in Mexico by groups of the political opposition to the president who

dedicated considerable financial resources to spreading fake news, was prevalent. Efforts to discredit the administration varied but included, for example, a prominent news anchor in the country calling on the population to disregard the measures instructed by the Undersecretary of Health. Mexico lived through an epidemic of political polarization and fake news that at some points put at risk the population's compliance with the Covid-19 management strategies that were being put in place.

Finally, it should be pointed out that the strategy of the educational sector against Covid-19 was far from monolithic and rather brought to light the profound inequalities in the operating conditions of different education centers. These differences mirror in a crude manner the social inequalities and injustices in Mexico. Making an overall assessment is difficult precisely because some strategies were highly successful in that no interruption of the education effort occurred, while others were unable to even reach their target population of students effectively.

One aspect is clear, even the most sophisticated strategies that allowed education efforts to continue with the use of world-class education and communication technologies, did not quite find a way to substitute real human contact and the socialization function of education. Perhaps, one of the lessons we must draw from this experience is that no amount of technology is able to replace face to face interaction or the care and emotion present in a classroom, just as no amount of internet connectivity is able to solve the structural violence inherent to the social and economic anatomies of our countries.

Peru

Overview

Peru is a country located in South America with a population of 31,2M people, and a territorial extension of 1,28M square meters. In Peru, since the first case of Covid-19 detected on March 5, 2020, Peru has currently confirmed 65 thousand cases of infection reporting 1814 deaths as of May 9th, 2020.

Early on, the government declared a national health emergency on March 15, for a period of 90 days, in addition to decreeing a national state of emergency for a period of 15 days to stop the spread of the new coronavirus in the country, including mandatory social isolation and the closing of borders.

The start of the school year in Peru is in March, throughout the educational system, therefore, due to the national emergency, the Ministry of Education initially suspended the start of face to face classes in basic and higher education until March 29, 2020, which generated an uncertainty. Close to the expiration date, the suspension of classroom classes was extended until May 5, 2020, authorizing Educational Institutions to start the academic period with non-classroom classes.

In Peru, children under 15 years represent 24.9% of the total population and older adults 12.7%. In this academic year, 8M children and adolescents were expected in basic education, around 1.8M children in kindergarten, 3.7M in Elementary schools and 2.6M students in middle schools. At higher education institutions over 1.9M students, where the university population represents three quarters.

Reflections from the educational landscape

On April 18, one month after the start of the state of emergency, the government announced the suspension of face-to-face classes indefinitely for the entire educational system, in such a way that all educational institutions and all plans must adapt and choose "non-in-person classes".

It should be noted that, in Peru, although the current General Education Law recognizes that in the educational system there is the face to face, blended, and distance modality for all educational levels, distance education is not widespread. In fact, in basic education it is practically non-existent, it only applies to very specific rural secondary programs, while in higher education it has been questioned both by public policymakers and by certain sectors, public opinion, by some bad practices and by the resistance to change of the actors of traditional education.

On April 6, 2020, the Ministry of Education launched the "I Learn at Home" program, a multichannel distance education service on television, radio and the Internet, so that basic education students (initial, primary and secondary, special and alternative) can access to the right to education, immediately, during the State of Emergency. In Peru, internet penetration does not reach the entire rural area and is weak in some areas such as the jungle. In the medium and long term, it is expected to complement the lessons

that teachers give in the classroom, focusing especially on students from rural and remote areas to reduce inequalities in learning.

Through the platform, learning guides, audios, videos, workbooks and other materials are made available by different levels and grades, 24 hours a day. Likewise, a weekly schedule of 5 working days with different activities per day, depending on the student's grade and level, by radio and open television, with which it is intended to reach more than 6M basic education students.

For students with special abilities, one activity is scheduled per week. The contents are part of the competences of the official curriculum, having prioritized, to begin with, the development of competences for life, work, democratic coexistence and the exercise of citizenship.

It is important to note that in Peru, unfortunately, public education is quite questioned for its quality and private basic education reaches 1.5M students of all socioeconomic levels, particularly the lowest, so that 70% attends private schools that cost around $ US100 a month (10 annual fees), in a country where only 70% of the EAP is formal, so many families have stopped working and do not receive income from confinement.

During the first weeks, these antecedents have generated confusion and reaction of rejection on the part of the parents, since on the one hand they changed all their life plans and had to attend to their children's education at home, with tele-education or online education that schools began to develop, combining with the telework that corresponds to them as workers. In fact, national surveys reveal that 41% of users disapprove of the platform, with greater emphasis on the lower socioeconomic sectors and in the south of the country, while the north and the Amazon accept it between 67% and 77%.

The bewilderment in the face of the pandemic and the conditions described configured a scenario in which a debate was generated of disapproval of the public offer and of questioning the cost of private education, at all educational levels, resulting in the denial of parents to comply with the established fees, putting at risk the sustainability of educational institutions, particularly the fees of workers and teachers, due to financial insolvency.

Regarding university education, in addition to the above conditions, it is added that the first phase of a reform process was being completed that subjected all public and private universities in the country to a process of licensing or operating authorization. The University Law issued in 2014, in force until the beginning of 2020, establishes that 50% of the credits of distance programs must be carried out in person, with the effect that for this academic year 2020 the offer of distance and partially-in-person programs was minimum.

In fact, public universities closed the few distance programs that worked, since they did not meet basic quality standards, while private programs left few programs, all converted to blended education. Although there are no official public statistics, it is estimated that this year around 55K university students should have started in official distance learning and blended education programs.

Due to the inexperience of distance education at a higher level, particularly from public institutions, and the sharp drop in employment in the country, which prevents covering the costs of private education, it is estimated that at least 500K higher education students, who are located in the lowest socioeconomic sectors, will be left without studying this academic year, despite the rapid learning of the directors and teachers, as well as the adaptations and investments made in technology by the universities.

Lessons learned and suggestions

Students are beginning to adapt to the system, surely faster than the parents themselves, and now that the picture is clearer, and has been confirmed that will not be possible to return to “normal” face to face classes for this entire academic period (until December 2020), should allow the compliance phase to pass earlier, so clear messages from the authorities are required.

Those who already had the experience of studying at a distance, autonomy skills or had used technologies in the educational experience, already reveal their enthusiasm and even pride in being

distance students, and therefore be better prepared and have been pioneers, claiming a study modality that had been questioned and diminished.

Access to education is subject to the afforded by minimal economic stability, which in emerging countries such as Peru is quite fragile and has been substantially broken at this juncture, so the speed of economic recovery will condition student retention.

Higher distance education has been defined by law in virtual environments. Although in our countries, the penetration of mobile phones is notable, internet access, necessary for online education, does not fully reach rural areas, given the geographical complexity of the Andes, population density and means of access in the Amazon. Such a view forces to intensively combine a training offer of synchronous and asynchronous media, for which expertise in the modality is required since the social pressure and pressure of technology providers by synchronous media, with image, voice and sound is quite strong.

Although radio and television are useful and revalued for basic education, in higher education, we have no background, infrastructure, equipment or experience, so the availability of the internet is a condition that the state should guarantee, in agreements with the private, and incorporating it more decisively as a public policy linked to the right to education.

Overall country-based evaluation

Peru, who has been regressing regarding distance education, has the opportunity to value it with all the benefits it offers for access to the right to education at all educational levels, particularly at the higher level, since before the Pandemic, only a third had access to online courses. Today, the alternative of expanding coverage and responding to the labour demand and competitiveness that the country requires is offered.

The media, which was previously discrediting distance education, today, are experiencing the advantages of working and studying from home and should be “converts” helping to generate the favourable climate and culture that we need to face positively the joint and show its benefits.

In particular, this situation should be an impulse for public services to reach everyone, extending connectivity to remote places, taking advantage of the integration of telemedicine services, virtual education, identity registration, among others. The Pandemic has opened the opportunity for digital transformation that various economic sectors were initiating and have now accelerated.

Uruguay

Overview

Since March 13, the day the health emergency was declared, 620 confirmed positive cases of Covid-19 have been registered through the diagnostic test, while 15 died. Since that date, the government has ordered a series of measures after decreeing a state of a national health emergency. The population has conscientiously adopted these recommendations and has successfully managed the crisis. In the case of education, face to face activities were suspended at all levels, from March 16th, while continuing educational processes remotely using a variety of resources and technologies.

Uruguay has a total population of 3,505,985, 1,697,985 men and 1,808,000 women. The population of K12 students is 1.029.418, distributed as follows: Early Childhood and Initial education,192,702; Primary Education, 306,660; Middle Education, 355,991; Higher Secondary Education, 174,065. The population of students in Tertiary Education is 148,056, of which 107,623 are in University.

The main actions taken as a response to the threat of Covid-19 were the exhortation to stay at home in self-quarantine, take extreme measures of personal hygiene, and follow social distancing guidelines. Coronavirus.uy application was delivered for Android and IOS, allowing citizens to be connected to healthcare providers by telemedicine. A Coronavirus Fund was created, in order to mitigate the economic and social impact of the pandemic. The population has conscientiously adopted these recommendations, with 92% reporting that they were in self-quarantine. By May 2020, Uruguay began to transition towards the so-called *new norma*l, gradually starting some economic, commercial and educational activities in rural schools, led by a scientific committee. Everything indicates that Uruguay would be successfully passing the first stage of the Covid19 crisis, however, once the measures have

been relaxed and the second stage of the transition begins, the impact and possible new emergencies are going to be valued.

According to a survey by the Council for Initial and Primary Education (CEIP), around 70% of the students in public education have registered and maintained some connection with their teachers on different platforms, but the situation varied among the subsystems. To identify those who have not yet connected, the administration resolved to strengthen the bond through community teachers, aiming to maintain the link with students. Uruguay is in an advantageous situation compared to other educational systems, due to the high degree of connectivity and the devices that have been distributed during the last 10 years within the framework of the OLPC Program, called Plan Ceibal, that cover most of the K12 population. However, not 100% of the families were reached, and there were differences in digital skills of both students and teachers. The search for solutions was left to the communities, with an umbrella that establishes general guidelines and focuses on some curricular prioritizations and objectives during this period of suspension. So far, the Central Board of Directors (Codicen) have been giving generic exhortations, for both teachers and students, to maintain ties. A technical advisory team was formed, made up of representatives from the different subsystems to formulate the response to the current pandemic and established guidelines for action that involve planning, registration and greater engagement of students. This advisory team will also plan to return to face-to-face courses.

In Higher education in Uruguay, the public sector covers 88% of student enrollment. In that public sector, there are only two universities, one of which, the University of the Republic (Udelar), comprises 99.4% of students. This report is focused on the actions taken by Udelar. It is important to consider that Udelar's academic offerings consist of four pre-university courses, 153 undergraduate courses, 311 postgraduate courses and five initial elective cycles. Its population is around 150.000 active students, 11500 teachers and 6300 technical administrative and service staff. A very significant part of the growth of its student population, as well as the territorial expansion and academic offerings, occurred in the last ten years. During this period, blended education at Udelar was also generalized through its Virtual Learning Environment (VLE), with the explicit objective of supporting the growth of its student population as well as the territorial expansion and academic development. Udelar suspended face to face activities on March 13th, until conditions allow the return to face to face instruction safely. Udelar also established that teaching will continue to be conducted via digital platforms for the remainder of the first semester of 2020, incorporating appropriate student assessment for this modality, except in those cases where, for well-founded reasons, a new calendar was established to complete course requirements. Udelar also ensured that all students are able to study under the established modalities, directing scholarships to ensure access to connectivity and computers. On March 16, the Udelar Academic Technical Support Department published the Online Education Contingency Plan. The Contingency Plan noted that maintaining educational activities in alternative modalities would be a way of generating actions that provide information to the student and general population, occupy their time effectively, and generate activities that minimize the sense of isolation or inactivity. In the framework of the health emergency, and based on the institutional conditions reached, an approach focused on CARE of the entire university community and its resources was proposed, this proposal was called Online Teaching and Learning in Emergency Conditions. The plan consists of 4 dimensions: (1) Online Teaching and Learning in emergency conditions; (2) Redesign of online teaching and learning; (3) Adaptation of digital systems to the increase in demand; 4) Communication strategy.

The Academic Unit of the Education ProRectorate, developed a guide focused on curriculum development and evaluation with the goal to mitigate, as much as possible, a generalized curriculum backwardness that compromises the educational trajectories of most of the students and devise alternative solutions.

The National Administration of Public Education (ANEP), together with Plan Ceibal (the OLPC program in Uruguay), has offered a set of educational technologies to foster educational continuity. Courses were delivered based on an open free software web conference service, called BigBlueButton, letting children carry out activities and educational relationships between teachers and students. Families were encouraged to accompany their children to use it during the suspension of classes. This service was complemented with an LMS called CREA (which has been already adopted for over five years), and also another platform specially dedicated to mathematics education, called PAM and Matific, as well as a digital library (Biblioteca Ceibal), which is a nationwide service that provides access to more than 7,000 contents, including textbooks, recreational reading, audio stories, videos, songs, and images.

There is also an Open Educational Resources Repository, and more than 50 educational applications included in student tablets.

The delivery modes adopted were both synchronous and asynchronous. For the design or redesign of the online teaching and learning activity, the Udelar educational community had: (i) an open digital learning ecosystem; (ii) a community of support and advisory; (iii) open educational resources. The Digital Open Learning Ecosystem of the Virtual Learning Environment Program (ProEVA) combines the LMS with multiple educational platforms and services, developed with free software, that supports communities and individuals in the creation and use and reuse of digital content within the framework of open educational practices. The educational technologies that compose ProEVA's open digital ecosystem are: Virtual Learning Environment (Moodle), web conference service (BigBlueButton), recorded lessons and videos (OpenCast). The VLE brings together 250000 registered user profiles, belonging to 175000 unique users, considering students, teachers, officials, foreign visitors, members of organizations or bodies that use the VLE in the framework of cooperation. The VLE brings together 13000 courses, which contain more than 260000 resources, with an average of 25000 unique user access per day. In the multimedia area, there are nearly 500 videos, with the most viewed exceeding 72000 views. Faculties also offered a series of educational technologies that complemented those offered at the central level. Engagement with the open digital ecosystem includes tools available on the web. In this sense, an appropriate selection was encouraged considering: the prioritization of the use of free software and open formats, as well as the privacy and management of users' personal data, avoiding those that require students to create accounts. However, to accommodate large classes (more than 500 students), Udelar had also decided to incorporate a series of commercial solutions such as ZOOM and Webex, which are being evaluated.

In relation to technology adoption, the number of users of the Plan Ceibal platforms at this juncture has already grown to half a million new users. These solutions are also offered to private education institutions, in which many schools decided to implement video-based courses that were validated by the teaching authorities.

According to the survey carried out by the Academic Unit of the Education ProRectorate, by the end of March, 70% of the courses began to teach theoretical and theoretical-practical distance courses and 20% were preparing to do so in the coming days. This survey also confirmed the existence of a large contingent of teachers with a strong pedagogical commitment that was engaged in the creative redesign of their courses. In the first days of this emergency, most of the programs developed a very dedicated, and even personalized, work, to achieve the effective incorporation of incoming students who had just already made contact with university life.

Lessons learned

Uruguay has an important technological infrastructure and a wide and strong public education sector that has allowed the country to continue education. Although there have been countless problems resulting from the diversity of conditions in which it is developed both for teachers and students. In this sense, it is considered necessary to work from the viewpoint of care, attending to issues of diversity and vulnerability to which this emergency situation exposed us, as individuals and as an educational community. This approach takes into account the heterogeneous reality of teachers and students regarding their experience with digital teaching models, the accumulation of successful experiences, with different levels of development, the existence of a network of support and teaching teams with experience in design and teaching with digital technologies.

Suggestions

This section provides suggestions for policymakers, schools/universities, educators, and lastly for learners/students.

Suggestions for policymakers:

- Development of powerful public education and universal coverage from the initial level to higher education as a human right favors the continuity of access to education in the face of emergencies such as the current one. The development of powerful infrastructures based on public investment favors the conditions for universal access to the internet, and educational technology policies that provide open, free and sovereign solutions that support autonomy against the potential problems of the market in an emergency.

Suggestions for schools/universities:

- Care: In the framework of a health emergency, a community CARE approach and resources is needed, with the aim to mitigate the negative impact of emergency situations, give continuity to academic activities and understand the strategy as an opportunity to raise awareness among the population in general, and the educational institutions in particular, on how to deal with and act in these situations. The priority is to prevent the spread, to provide reliable and clear information on the measures to be taken, mitigate the feeling of insecurity, misinformation and risk of infection.
- Open EdTech: It is essential to make an adequate selection of educational technology that prioritizes the use of free software and open formats, as well as the privacy and management of users' personal data, avoiding those that require students to create new accounts?.
- Collaboration: It is considered necessary to create a community of experts in digital technologies in each service, to be able to accompany teachers and students during the implementation of teaching and learning strategies that are carried out through the virtual modality during the period of suspension of face to face classes.
- OER: In order to offer materials and courses that allow teachers to obtain didactic, pedagogical and communicational guidelines to carry out the redesign of teaching, the creation of an open educational resources bank for teacher training is proposed. It is also a great opportunity to open all the educational resources of the institution, allowing students full access to them.

Suggestions for educators:

- Empathy: In the face of the emergency, it is very important to set realistic objectives, generate proposals that consider the current moment as a society. See and recognize ourselves as subjects. Develop online teaching and learning with simplicity, commitment, and empathy.
- Humanity: The distance modality allows multiple forms of implementation, allowing particular ways of establishing a link between those who teach and those who learn. The invitation is to build online proposals in which humanity emerges in greater depth than in person.
- Simplicity: Use digital technologies that are best known, give continuity to what is in development and make proposals that allow deeper human contact. It is considered important to decrease the transmission of content and increase interactivity and asynchronous activity, considering not only those who are familiar and experienced in virtual teaching strategies but also those who are experienced or have not used it before.
- Agency: It is very important to see teachers as curriculum developers. Let teachers determine which of the contents of the curriculum are a priority, reducing the volume and replanning, and if the course allows it, also change the order to address those contents. Also, enable teaching strategies that are possible to be developed entirely online.
- Collaborate: It will be essential to work in teams, made up of the teachers responsible for the subject, accompanied by teachers trained in educational and didactic technologies. Find ways to make connections, to enhance collaboration.

Suggestions for learners/students:

- Contact: maintaining contact with your teachers and with your classmates is essential, find ways for this to happen, using all the media that are useful to you, especially the ones you know best.
- Planning: make plans and organize your time that takes into account the learning of new media, as well as the difficulties that you may arise in the new modalities
- Participate: try to maintain participation in synchronous and asynchronous activities, following the rhythm and sequence proposed by the teacher.

Overall country-based evaluation

Uruguay has an important technological infrastructure and a wide and strong public education sector that has allowed the country to continue education. Although there have been countless problems resulting from the diversity of conditions in which it is developed both for teachers and students. Taking into account the heterogeneous reality of teachers and students regarding their experience with teaching models with digital technologies, a series of successful experiences have been developed that have

allowed the educational relationship to continue, first and second, the development of the curriculum under emergency remote education conditions. This has occurred in the entire educational system, both public and private, which makes it possible to see the health emergency impact as less problematic. However, and beyond the important social protection measures that have been developed, they are still insufficient. And it is expected that the economic and social impact of the pandemic will have short and medium-term implications and may affect the educational trajectories of students and their conditions for learning.

The important technology that Uruguay has, the massive connectivity coverage for all households based on the state policy that the country has joined in the past 15 years has established the bases for developing remote teaching strategies at all levels of the educational system. In addition, the educational system had already provided educational platforms of various kinds to carry out online activities, which made it possible to establish a basis for the development of emergency remote education, at all educational levels.

Beyond these conditions, it is important to highlight that the digital skills of teachers and students vary widely, as well as the social conditions in which the teaching and learning activities are carried out, which means that there have been significant difficulties in access in some sectors of the population, preventing or hindering access and educational continuity in some cases. Mitigation measures have been established, such as scholarships for access to devices at the university level, or free access to all edu.uy domains. The other aspect to consider is that most of the processes, especially in the field of higher education, have led to transferring the face to face classroom to virtual classrooms using web conference services, especially for those who have allowed the adoption of commercial solutions such as Zoom or Webex. The direct translation of teaching to web conference models can be problematic in terms of quality, as it does not meet the standards of instructional design. In the same way, some complex aspects have not yet been resolved, such as the question of evaluation and accreditation, especially at the higher education level, which is currently being considered how it can be developed in the best conditions and in favor of the students.

At all educational levels, especially the public sector, access to open educational resources has been favored as a strategy to promote access to content, not just in the face of this emergency situation. The continuity of institutional policies that have been carried out in recent years, like the recent creation of the Open Education Working Group in the National Public Education, have been translated into institutional recommendations during the Covid-19 emergency, making available to the communities the various educational contents in the open modality, prioritizing open technologies, in particular in higher education. Although the developments achieved so far are based on open technology, they have been threatened by the advancement of commercial platforms that have allowed to offer high-demand services difficult to compete with using open solutions. This implies a threat in terms of privacy and protection of personal data of students and teachers and of the entire educational community, which must be evaluated and monitored.

Disclaimer

The views and opinions expressed in this study are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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