



المنظمة العربية للتربية والثقافة والعلوم
ALECSO

Statistical Bulletin No.2 / 2021



**The use of digital technologies
by States to mitigate COVID-19
negative impacts on education,
culture and science**

Situation in the Arab countries

The use of digital technologies by States to mitigate COVID-19 negative impacts on education, culture and science

Situation in the Arab countries

1 – Introduction

The 2030 Agenda for Sustainable Development recognizes the vital role that ICT can play in the implementation of the SDGs. Target 9.C calls for “*significantly increasing access to information and communications technology and striving to provide universal and affordable access to the Internet in least developed countries by 2020.*” It was expected that half of the world’s population would be connected to the Internet in 2019, which was actually achieved according to estimates by the International Telecommunications Union (ITU).

With the outbreak of the COVID-19 pandemic in late 2019, which disrupted the normal course of activity in several sectors, the vital role that digital technology can play in responding to the crisis has been proven. The process of digitization has gone at a faster pace, particularly for purposes of remote work and access to health, education, and basic services.

In terms of education, the world was already faced with the challenge of providing education for all. Though a high rate of access to primary education had been achieved, a large number of children and youth, estimated at 250 million around the world, and over 16 million in the Arab region, were still out of school. The pandemic has further complicated the situation, with UN reports indicating that COVID-19 has caused the largest disruption of education in history, affecting nearly 94% of students in the world, due to the repeated closure of schools and other education and training institutions.

Distance learning, adopted in response to this situation, has laid bare the digital disparities existing between countries, which will be highlighted in this Statistical Bulletin.

In terms of culture, UNESCO reports highlight the great damage caused by COVID-19 to the cultural sector and to those working in it. Estimates indicate that under the effect of the crisis, the film industry could suffer a loss of 10 million jobs; a third of art galleries are expected to reduce their staff by half; six months of closure could cause the music sector financial losses of nearly \$10 billion; and the international publishing market is expected to shrink by 7.5%.

In a guidebook entitled : “*Culture in Crisis: Policy Guide for a Resilient Creative Sector*”, UNESCO reviewed the three main lines of action adopted by countries around the world to support the cultural sector and those working in it, namely: Direct support for artists and cultural professionals; Support for sectors of cultural and creative industries; and Strengthening the competitiveness of the cultural and creative industries.

During the COVID-19 crisis, many countries organized virtual visits to several museums and archaeological sites, and used online platforms as an alternative for screening rooms and movie theaters. Large populations, however, remain deprived of access to culture and arts, with figures indicating that about 45% of the Arab population are not connected to the Internet.

2 - Percentage of individuals using the Internet

Over the period 2014-2019, the Arab region, which has a population of 436 million (2020), witnessed a significant increase in the percentage of individuals using the Internet, going up from 38.2% in 2015 to nearly 55% at the end of 2019. The number of those with no internet access amounts to 196 million.

This situation should not, however, overshadow Arab States’ efforts, in recent years, to develop Internet infrastructure, enabling a significant increase in the percentage of individuals using the Internet (Table 1) which ranged between 95 and nearly 100% in the Gulf countries in early 2020. This percentage also increased in several Arab countries, reaching 80% in Lebanon and Jordan, 77% in Iraq, 74.4% in Morocco, and 70.6% in Palestine. The most significant increase occurred in Djibouti where the percentage soared from 12% in 2015 to over 63% at the end of 2019, a respectable percentage compared to other countries having the same economic and social situation. Conversely, Somalia and Comoros still have low percentages whose improvement needs further action.

Table 1

country/year	2014	2015	2016	2017	2018	2019
Algeria	29,50	38,20	42,95	47,69	49,04	57,50
Bahrain	90,50	93,48	98,00	95,88	98,64	99,70
Comoros	6,98	7,46	7,94	8,48	9,01	9,49
Djibouti	10,71	11,92	13,13	55,68	58,00	59,00
Egypt	33,89	37,82	41,25	44,95	46,92	57,28

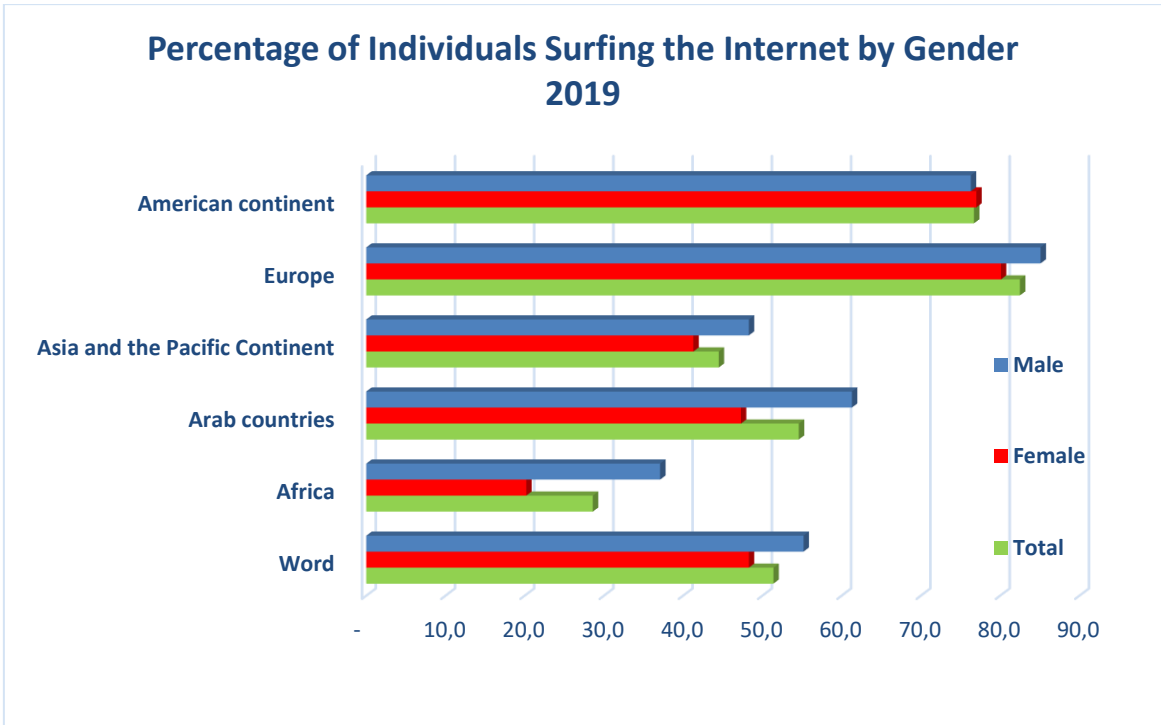
Iraq	13,21	18,00	21,23	49,36	64,00	70,00
Jordan	46,20	60,11	62,30	66,79	73,80	76,50
Kuwait	78,70	72,00	78,37	98,00	99,60	99,54
Lebanon	73,00	74,00	76,11	78,18	79,80	81,50
Libya	17,76	19,02	20,27	21,76	23,00	24,20
Mauritania	10,70	15,20	18,00	20,80	22,00	25,00
Morocco	56,80	57,08	58,27	61,76	64,80	74,38
Oman	70,22	73,53	76,85	80,19	85,50	90,30
Palestine	53,67	57,42	61,18	65,20	64,40	70,62
Qatar	91,49	92,88	95,12	97,39	99,65	99,65
Saudi Arabia	64,71	69,62	74,88	94,18	93,31	95,72
Somalia	1,63	1,76	1,88	2,00	2,20	2,29
Sudan	24,64	26,61	14,10	18,00	22,00	25,40
Syrian Arab Republic	28,09	29,98	31,87	34,25	35,80	37,10
Tunisia	46,16	46,50	49,60	55,50	64,19	66,70
United Arab Emirates	90,40	90,50	90,60	94,82	98,45	99,15
Yemen	22,55	24,09	24,58	26,72	27,80	29,10
Arab States		38,20	41,70	47,20	50,90	54,60
World		41,10	43,90	46,30	49,00	51,40

Source : International Telecommunications Union

(—) Estimates by ALECSO Observatory

The available data also indicate a persisting gender gap in access to the Internet : at the end of 2019, 48.3% of women and 55.2% of men in the world use the Internet. The largest gender gaps are recorded in the Arab countries, with 47.3% for women and 61.3% for men. In Africa, the percentage is 20.2% for women and 37.1% for men. The gap is somewhat narrow in the countries of Europe, Asia and the Pacific, while similar figures are recorded in the American Continent, with a slightly higher percentage for females (Figure 1).

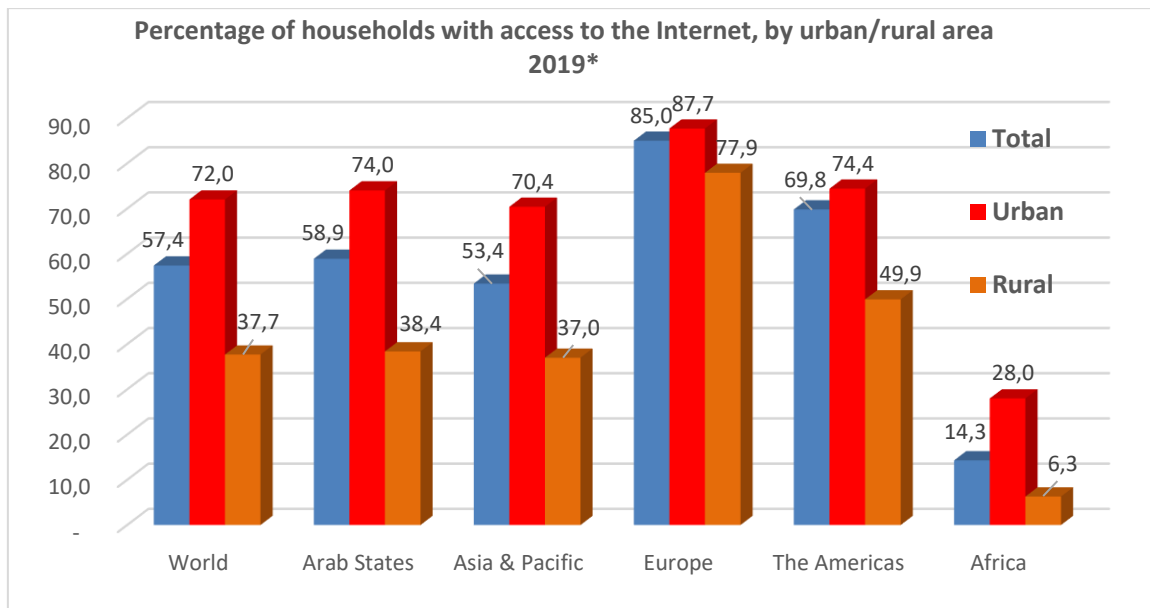
Figure 1



Source : International Telecommunications Union

There is also a large rural-urban gap in the use of the Internet in the Arab countries. In rural areas, only 38.4% of the families have access to the Internet, compared to 74% in the urban areas. Almost the same rural-urban disparity is found at the global level (Figure 2). This gap is mainly related to the degree of availability of Internet access infrastructure, information highways, mobile phones, and digital information-sharing services. The COVID-19 crisis has further laid bare this disparity, with people increasingly relying on the Internet for online communication, remote work, distance learning, online purchase, and other services.

Figure 2



Source : International Telecommunications Union

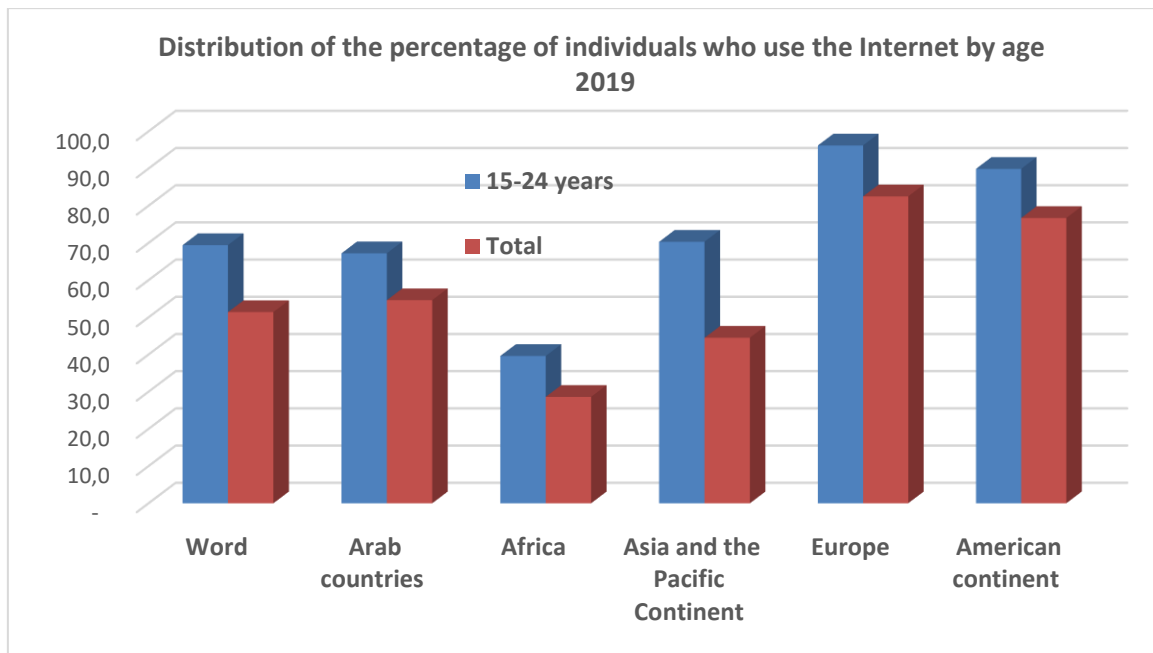
* June-2020 estimate

In terms of age, the available data on young people aged 15-24 years indicate that the spread of digital technologies has offered children and youth unprecedented opportunities for communication, interaction, sharing, and learning, as well as for expressing their views on everything that affects their lives and their communities. However, wider and easier access to online services poses significant cyber-security challenges for children and youth, including privacy, peer violence, age-inappropriate violent content, and other issues. Today, in fact, children and youth are exposed to great, ever-increasing transnational threats that are difficult to track and to hold their perpetrators to account.

COVID-19 lockdowns have increased the number of children and young people who join the online world for the first time for purposes of distance learning or online communication. Many younger children started using the Internet much earlier than planned by their parents, most of whom are unable to control their children, leaving them at risk of accessing inappropriate content or being targeted by criminals.

These issues and risks to which children and young people might be exposed at home and outside, should not, however, overshadow the positive aspects of Internet access for young people, as it offers them quick access to learning content and provides a space for social communication and intellectual exchange.

Figure 3



Source : International Telecommunications Union

3 - Repercussions of COVID-19 on education, and the technology response

Before the pandemic, the world was already facing significant challenges in ensuring access to education as a basic human right. Although there is almost universal access to primary education in most Arab countries, the fact remains that a significant number of children and youth (16.2 million) are still out of school, with nearly 69.5 million illiterate people aged 15 years and over, including 9.7 million young people aged 15- 24 years. Moreover, quality education is far from guaranteed. According to the UNESCO Institute for Statistics, about 56% of primary-school-age children worldwide lack basic literacy skills. In the Arab World, their number amounts to 27.5 million children. .

In terms of financing, the challenge was already great before the pandemic. Estimates by UNESCO and the World Bank in early 2020 concerning SDG4 financing gap in low-income and lower-middle-income countries, indicate a huge amount of \$148 billion annually. This amount increased by over 30% due to the COVID-19 crisis.

By mid-April 2020, about 94% of all students in the world, across all levels of education, were already affected by the repercussions of pandemic.

According to a UNDP report, response to school closure has varied according to the country's level of development. For example, 86% of primary-school-children were out of school during the second quarter of 2020 in countries with low levels of human development, compared to only 20% in countries with very high levels of human development. This situation applies to all countries of the world, including in the Arab region.

Faced with the challenges of the new situation, governments, including in the Arab world, have focused their attention; as a matter of priority, on finding quick solutions to school closure and education disruption. Many of them have resorted to ICT tools to enable teachers to provide online lessons, which means shifting toward new teaching and pedagogical methods, often without adequate training and resources.

Several countries and regional and international organizations have worked to develop solutions in response to this situation, including ALECSO's e-learning initiative (www.alecso.org/elearning), launched in March 2020 and implemented in a number of Arab countries such as Comoros, Djibouti, Lebanon and Mauritania.

This initiative is designed to promote open education and e-learning during COVID-19, through :

- Developing alternative technological solutions, by leveraging ICT to respond to school closure and education disruption and maintain the continuity of learning;
- Offering Arab students and teachers free access to Arab educational content available through ALECSO's platforms and other Arab specialized websites and portals; and promoting open education and e-learning to overcome education disruption during crises, through the Arab OER Hub (www.alecso.org/oer) and the Arab Open Education Platform (Rwaq);
- Organizing training courses for Arab teachers through ALECSO's e-training platform, and providing technical support so that they can make best use of platforms and tools for the production and provision of educational content.
- Strengthening cooperation and partnership with the competent authorities and the relevant organizations, institutions, experts and partners active in the field of e-learning; and sharing experience, expertise, best practices and technological solutions to maintain learning in times of education disruption.

However, the number of countries that can actually use distance learning methods remains relatively low. In fact, data and indicators on Internet coverage in the Arab States reveal a significant disparity, with over 90% in high-income countries, against less than 50% in low-income countries. Failure to use distance learning methods is largely attributable to the existing digital divide, to which should be added the low level of digital literacy among students, parents and teachers.

In countries using distance learning, students with disabilities face obstacles due to the lack of the needed equipment for Internet access and of disability-sensitive materials that can help them join online programs. To improve accessibility for students with disabilities and their parents, some countries have been developing tools and resources, including audio and video narration in sign language and simplified text, and other assistive devices.

There are many other factors that might deprive children of their right to (face-to-face or distance) education. These include, *inter alia*, poverty, wars, violence, and forced displacement.

In times of COVID-19, people with no Internet connectivity are denied the benefits of modern technology. Many of those left behind are women, people with disabilities, and inhabitants of poor or remote areas.

4 - Repercussions of COVID-19 on culture, and the technology response

COVID-19 has had a major impact on the culture and art sector and on those working in it, with most cultural and artistic events having been postponed or even canceled. UNESCO reports indicate, in this regard, that the severe damage caused to the culture sector is difficult to assess. For example, cultural tourism accounts for nearly 40% of global tourism revenues, with world heritage sites and museums particularly attracting a large number of visitors. Due to COVID-19, 95% of museums were shut down, and 9 out of 10 countries closed their heritage sites. Many intangible cultural practices were also disrupted, with adverse impacts not only on the cultural life of societies but also on people working in theatrical arts and traditional crafts in the informal sector. The crisis has also affected professionals in the creative sector, including those working in theatres and art galleries.

The pandemic has thus posed serious challenges to workers in cultural tourism, and in the cultural sector in general, with deep repercussions in the medium and long terms. In the same context, a recent ICOM study indicates that about 13% of museums may never open again, which means reduced access to culture.

A UNESCO report issued in late 2020 states that in addition to the cultural sector being severely affected by COVID-19, many people were no longer capable of attending artistic and cultural events which have mostly moved online. Besides, due to Internet connectivity problems, about 50% of people around the world were unable, during lockdowns, to attend such events.

COVID-19 has demonstrated the importance of promoting digital access to cultural heritage in times of lockdown. In this regard, cultural heritage organizations in several countries have risen to the challenge to play a leading role in promoting digital heritage through the use of modern technologies, such as artificial intelligence and machine learning, with due respect for key ethical principles.

Action is, in fact, needed to narrow the gap between digitally equipped and unequipped institutions, thereby ensuring universal access to heritage and promoting diversity, inclusiveness, creativity, and knowledge sharing. It is also necessary to foster the use of digital technology and leverage expertise and resources in order to strengthen the role of cultural institutions.

5 - Repercussions of COVID-19 on scientific research, and the relevant technology response

As indicated in the Statistical Bulletin No. 1/2021 released by the ALECSO Observatory, the available data on human resources working permanently in Research and Development (R&D) in the Arab countries show a relative increase in the number of R&D workers during the last decade, but still without reaching the levels of developed countries. This situation might cause Arab universities and scientific research centers to lag behind in the global race to develop a COVID-19 vaccine. But there is still opportunity to revisit the relevant government programs and increase the amount of funding allocated to this vital field.

Yet, attempts made by Arab health research centers to support global medical efforts and achieve results that serve all humanity will hardly bear their fruits in the short term. The World Health Organization has so far identified 16 COVID-19 vaccines that can be used in clinical trials, with no Arab country involved in this race.

This should not, however, overshadow the fact that some Arab governments have taken steps to promote innovation, and have created funds to support innovators, in addition to other funds designed for scientific research spending. A new “culture” is thus emerging, as these countries have unprecedentedly undertaken to provide, free of charge, the needed references for the scientific research community.

On the other hand, a WHO report indicates that response to COVID-19 has changed the priorities and work requirements of research centers around the world. Scientific discoveries are now not necessarily registered in the name of the discoverer. Many studies related to COVID-19 appeared online months before the release of the scientific journals in which these studies were supposed to be published. Researchers worldwide have been sharing the results of COVID-19 sequencing, and over 200 clinical trials have been undertaken as part of collective efforts involving hospitals and laboratories around the world. The same report provides many examples of global cooperation among doctors and joint efforts undertaken by major universities and research centers in the battle against the pandemic.

In this regard, modern technology has played a key role in terms of sharing real-time data and information among researchers, using applications to help with clinical decisions, and adopting technology-based systems to develop, follow up and share best clinical practices.

Conclusion

Data and indicators show that nearly half of the Arab World’s population have no access to the Internet, desperately needed in times of COVID-19. The pandemic has, in fact, laid bare inter-state, rural-urban and gender-based disparities in terms of Internet access. This

has negatively affected several Arab countries having limited ability to use ICT tools to mitigate the negative repercussions of the pandemic on education, culture and science.

In the field of education, global reports issued before the pandemic already highlighted the difficulty of achieving SDG 4 on “*ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030*”. With the outbreak of COVID-19, achieving this goal has become even more challenging for several Arab countries.

A joint publication by the UNESCO Institute for Statistics and the 2019 Global Education Monitoring Report, issued a few weeks before the outbreak of the pandemic, revealed that delay in achieving education goals had become a certainty, and that only 60% of children in low-income countries complete primary education, with a declining rate, in some countries, of students with minimal literacy skills.

Under the effect of COVID-19, the situation has grown even more challenging, as it threatens to erode many achievements, although governments have promptly worked to provide online solutions for teachers and learners in order to maintain education during school closures. A large number of students, however, do not have regular and affordable access to the Internet, which affects their ability to continue learning during this period.

COVID-19 has also had adverse repercussions on the culture sector and on those involved in it, be they institutions or individuals. In response to the disruption of cultural activities, art and culture institutions and independent artists moved online, using social media and virtual reality platforms to reach out to their audiences. Many publishers have eased restrictions on digital publishing of copyrighted works. However, with a low Internet connectivity in many regions across the Arab World, these works did not reach a substantial proportion of the target population.

In terms of scientific research, researchers all over the world have made intensive efforts to develop COVID-19 vaccines or drugs. Modern technology has enabled researchers to share the results of their research online, without the need to wait until they are published in scientific journals. In the Arab region, attempts by Arab health research centers to support global medical efforts are not expected to yield their results in the short term. The World Health Organization has identified a number of COVID-19 vaccines that can be used in clinical trials, with no Arab country involved in this race. Yet, it should be recalled that several Arab countries boast a large number of world-class researchers, especially in the medical field, who have made tremendous efforts to treat people affected by the pandemic.

Bibliographic resources

-ALECSO Statistical Report on Education, Culture and Science in the Arab Countries for the year 2021, first edition - March 2021.

-Technology and the Corona Virus Pandemic: Crisis Management (UTI News magazine) Issue 3, year 2020 - International Telecommunication Union.

-The main elements of the annual report of the International Telecommunication Union for the period 2019-2020 - ITU website

-Digital trends in Europe 2021- ICT trends and developments in Europe, 2017-2020 - ITU 2021

-ITU website - COUNTRY ICT DATA (LATEST AVAILABLE DATA).

-Journal of Follow-up to the Repercussions of the Corona Pandemic on the Cultural Sector - Issue No. 11, June 2020 - UNESCO-

-Distance education: its concept, tools and strategies - A guide for policy makers in academic, vocational and technical education - published by UNESCO in 2020.

-Policy brief: Education during the COVID-19 pandemic and beyond - United Nations, August 2020.

-Effective and rapid action is required to curb the impact of the Corona virus on education around the world - World Bank - January 22, 2021.

-Status of COVID-19 vaccines within the WHO EUL/PQ assessment process - https://extranet.who.int/pqweb/sites/default/files/documents/Status_COVID_VAX_08Feb2021.pdf