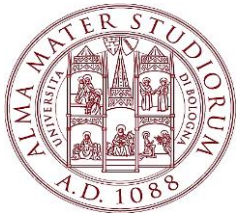

The Institute of Advanced Studies
University of Bologna

Report

Responding to the challenge of COVID-19: Threat or Opportunity for Education?

(experience of Egypt, Croatia, Germany, Japan, South Africa, Sweden,the USA)

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Preface

This report delivers a result of common efforts of the doctoral students, fellows of the Institute of Advanced Studies (ISA) of the University of Bologna to contribute to the global agenda of sustainable development goals (SDGs). The University of Bologna is fully committed to the values of sustainability, integrating SDGs in its mission and strategy (Report on U.N. Sustainable Development Goals, 2019). We share this vision and present this piece of work "Responding to the challenge of COVID-19: Threat or Opportunity for Education?", as our contribution in addition to the wide range of activities the University of Bologna has undertaken towards achieving sustainability at the local, national and global level.

The report illustrates the outcome of interdisciplinary collaboration that unites young researchers from several faculties, with different academic background, knowledge and expertise, thereby highlighting presence of common ground under umbrella of the Institute of Advanced Studies (ISA). Therefore, in addition to the academic diversity, this is a result of international cooperation as far as ISA fellows are originally citizens of different countries (Egypt, Japan, Russia, Iran, Germany, Croatia, South Africa). Thanks to the Institute of Advances Studies we grasp the opportunity for enhancing international and interdisciplinary collaboration, creating together this overview of experiences of several countries, that can potentially provide social and practical implications.

This tradition to work together within a common project was established in 2018. It began with the idea to undertake a collective endeavour under the framework of the SDGs agenda and later progressively moved to the stage of brainstorming discussions regarding the content and format of the outcome to produce. The initial selection of the topic appeared to be both interesting and challenging process, since the joint project was supposed to unite PhD scholars from various fields, thereby forming an intellectual common background where all participants will be able to contribute. Ultimately, education, as one of the core elements within the SDGs agenda, was chosen as a general framework. In essence, education is the area which literally unites all fellows of the Institute of Advanced Studies, as doctoral students of the University of Bologna, belonging to the global academic community and education system in a broad sense, despite the differences in background, area of research and the country of origin.

The first project in 2019/2020 was dedicated to education that was examined in a close link with social, economic, and primarily political changes within a range of contexts. The key assumption underlies that political changes and reforms in education policy could provide significant changes in the national education system, having impact on various indicators, e.g., quality of education, literacy rate, inclusivity and accessibility to the infrastructure facilities for

particular social groups, etc.

In a format of a brief report, the project aimed at illustrating the overview of the situation before and after radical 'political change' in four African countries: Ghana, South Africa, Tunisia and Ethiopia. Considering differences in geographical, social and economic characteristics, there was presented a short analysis of each country-case that allowed to illustrate differences between the territories in terms of their historical and political background, as well as approaches adopted by governments to deal with challenges and strengthen education systems on the national level. Despite being located on the same continent, each country context was manifested through its own specificity and authenticity in approaches to shaping policy in education sector. That analysis of experiences across four African countries served as an initial basis for developing further directions of our collaborative work, having potential to be applied for a range of purposes (for education purposes as a foundation for case study, for policy development or simply for acquiring familiarity about the contextual richness of each country in terms of its historical, socio-economic and political path that resulted in a current formation of the national education sector).

The project this academic year is a continuation of the newly established tradition and although it is still related to education, however in 2020/2021 it takes different direction due to the influence of the global pandemic COVID-19. After numerous discussions and considering a variety of topics for a joint work, ultimately there was made decision to keep the main focus on education and examine it in relation to the unexpected challenge of pandemic that countries have faced, adopting their policies in response. How education systems in different countries were transformed and what are the consequences of these changes, how governments reacted to this shock and whether the pandemic can be considered as an opportunity for national education system became the core questions which pointed out the direction of this report, thereby reflecting the current agenda world-wide.

Undertaking this joint project also encouraged personal reflections of authors, as those who appeared to be directly affected by the impact of COVID-19 during doctoral studying. So, there is also a room within this common work for this external intervention into the PhD journey of ISA fellows.

Introduction

Sustainable development at the global level has been highlighted as a challenge that determines our time (Chin & Jacobsson, 2016). In 2015 the United Nations announced the new agenda, as a plan of action created for people, planet and prosperity, that encompasses 17 sustainable development goals (SDGs) and 169 targets (UN, 2015). This set of the UN SDGs embraced three dimensions of sustainability: economic, social and environmental, however, in essence, it was not the first attempt no help nations working together to achieve a common global agenda (Boeren, 2019).

SDGs were created on the basis of their predecessors – the Millennium Development Goals (MDGs) and finalize what the previous set of goals could not achieve. Although, MDGs provided a set of major international priorities, they were extensively criticized for a range of weaknesses, e.g., their tight focus and, thus, setting an incomplete agenda (Loewe, 2012). Based on the previous experience, sustainable development goals presented more ambitious and all-encompassing plan. The set of SDGs directed focus not only on ending poverty as MDGs, but addressed economic growth, social development and environmental protections, therefore targeting at all countries across the world (Boeren, 2019). In other words, SDGs are supposed to be applied universally and globally (Gaffney, 2014). Ultimately, all countries, regardless of their income-levels, agreed to pursue the path towards the SDGs by the year 2030 (van Zanten & van Tulder, 2020).

One of the goals – SDG 4 – was dedicated to education. Specifically, this goal illustrated the vision to 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (UN, 2015), covering all stages of education, e.g., pre-primary, primary, secondary, vocational, higher and adult education globally and, thereby, extending the MDGs framework. Education has been presented as a global project that embraces a wide range of aspects in literacy, numeracy, as well as wider learning, such as global citizenship, sustainability and gender equality (Unterhalter, 2019). The role of education has been recognized fundamental in reproduction of societies (Chabbott & Sinclair, 2020), and, thus, deserves a special attention due to its significant social implications.

The World Bank experts argue that the world has been already experiencing learning crisis: limited access to schooling, low quality of education and poor level of literacy among children in low- and middle- income countries, that made Sustainable Development Goal 4 quite problematic to reach (World Bank, 2020). In this regard, the global pandemic became additional tremendous burden for global education to bear and, therefore, sharpened existing difficulties and created new challenges for government all over the globe.

Dramatic news about the new virus of unknown origin were spreading across the world in 2019. Causing thousands of deaths the virus of the corona family resulted in the global pandemic. Being officially named as 'severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)', it became popularly called as 'coronavirus' or 'COVID- 19' (Sobrosa Neto, Sobrosa Maia, de Silva Neiva, Scalia, & de Andrade Guerra, 2020).

The coronavirus has changed the way how people across the world live and work (Nguyen et al., 2020). The new patterns of behaviour emerged; in particular, those patterns which were initiated by governments were comprised of social isolation and lockdown (Sobrosa Neto et al., 2020). And although it was not a long time ago, there was produced a huge number of studies regarding post-pandemic future of mankind (de Amorim & de Andrade Guerra, 2020).

Governments of majority of countries set a common goal to restrain the spread of the virus through variety of measures, such as lockdown, social or physical distancing, avoiding face-to-face teaching-learning, and restrictions on immigration (Kapasia et al., 2020). In essence, lockdown presents a state of the emergency protocol imposed by the competent authorities to restrict citizens from leaving their place of living resulting in mass quarantines and stay-at-home mode (Mishra, Gupta, & Shree, 2020). These restrictions have had considerable impact on all areas of life and education is not an exception.

We witnessed a major shift from traditional teaching-learning process to online teaching during the time of coronavirus due to importance of social distancing (Mishra et al., 2020). It became possible thanks to technologies and tremendous human efforts, that eventually allowed many students to continue education process. However, there are two sides of the coin.

On the one hand, modern technologies made virtual education accessible to many training programs at different levels of education system (Nguyen et al., 2020). For instance, video-conferencing platforms, e.g., GoToMeeting, Skype, Zoom and so forth became actively used in addition to the Moodle platform at universities (Oyedotun, 2020). The tandem of camera technologies and high-speed Internet was announced as a solution in replacing traditional learning experiences to the group-meeting software (Nguyen et al., 2020).

On another hand, there emerged a serious question about accessibility to the Internet among students and presence of all necessary facilities in institutions, e.g., schools, colleges, universities. Closures of schools, as a result of pandemic, threatened the education outcome considerably, due to inequality in education opportunities and different level of digitalization across territories.

Lack of resources (e.g., physical infrastructure, such as unavailability of computers, laptops and other electronic devices for teaching-learning process), digital inequality among stuff and students and no internet accessibility, especially in rural areas, lack of practical training for students (using a lab or fieldwork turned to be impossible in online teaching mode) (Oyedotun,

2020) formed severe problems for education sector globally. Hence, SDG 4 that aims to achieve inclusive and equitable quality of education and provide learning opportunities for all seemed likely to be missed in the pandemic time (T. L. P., 2020).

As a result, can this unprecedented impact on education, especially during the lockdown (Kapasia et al., 2020) be considered not only as a shock, but also as an opportunity? What kind of approaches governments had chosen to deal with pandemic and keep national education sector viable? Did this unexpected challenge of pandemic stimulate government for innovative solutions and improvement of the education system? What is the content and meaning of these transformations and whether they brought any positive changes in a country? All these aspects are contextually-dependent and answers can vary dramatically within each particular territory.

This report presents the attempt to shed light on these questions by illustrating experiences in seven countries: Egypt, Germany, Croatia, South Africa, Japan, Sweden, the USA. Seven cases – seven different geographical locations with its own history, culture, political, social and economic background were used to tell a story how governments faced a challenge of the global pandemic, transforming education systems through enacting new policies as a response to COVID-19. Each case presents a story of one country, introducing general information and then illustrating a short overview that explains organization of national education system and measures adopted by the government to address the influence of pandemic at each level: primary education (kindergartens), secondary (schools) and higher education (college and university level). The outcome of each country-case is presented as a brief conclusion through analysing the influence of pandemic as an opportunity for developing national education system.

The structure of the report is organized in the following way. Beginning with preface and introduction part, next sections consist of the set of cases of Egypt, Croatia, Germany, Japan, Sweden, South Africa and the USA respectively. The section afterwards, as conclusion, summarizes the obtained results, while the very final part is comprised of authors' reflections: we share our own experiences about the influence of COVID-19 that occured during the time of PhD studying.

Case of Egypt

Abdelmagid Basyouny Sakr

1. Introduction

Egypt, officially the Arab Republic of Egypt, is a transcontinental country with an important and strategic geographical location. It is located in the northeast corner of Africa. It extends to Asia as the Sinai Peninsula is located in the southwest corner of Asia. There is also the Suez Canal that connects the Mediterranean with the Red Sea. Its official language is Arabic. It has a unitary semi-presidential republic system. Its population is estimated at 101, 405,221 million as per January 2021, to be ranked thirteenth among most populated counties and the most populated in the middle east (Central Agency for Public Mobilization and Statistics, 2021). Total area is 1010407.87 km2 and the inhabited area is 78272.98 km2, or 7.8% of the total area (Egypt in Figures, 2015, p. 15). Egypt is divided administratively into 27 governorates. Egypt is committed to achieve the Sustainable Development Goals (SDGs). Egypt's national strategy, Egypt Vision 2030, is in line with the SDGs. It has three dimensions (economic, social and environmental) that cover broadly the SDGs in order to put the county on the right path toward progress and sustainable development in terms of international standards (Egypt′s voluntary national review , 2018). Egypt literacy rate is 71.2% (Egypt Literacy , 2020). Internet is available and internet users are 54% as per 2020 (54.74 million) (Digital 2020 report for Egypt, 2020). However, the level of digitalization in state institutions, sectors, and services is not well implemented. To help change that, the Egyptian government launched the Information and Communications Technology (ICT) 2030 strategy. ICT 2030 strategy should contribute to achieving the objectives of Egypt's vision 2030, through building digital Egypt. The government is undertaking a series of investments in developing ICT infrastructure, digital government services reforms, building capacities, and digital innovation. The strategy includes a plan for the digital transformation in the following areas: education, healthcare, and governmental services. It also includes a plan to maximize the contribution of ICT sector to Egypt's economic growth by focusing on capacity building, electronics design and manufacturing, and technology parks.

2. Educational system in Egypt

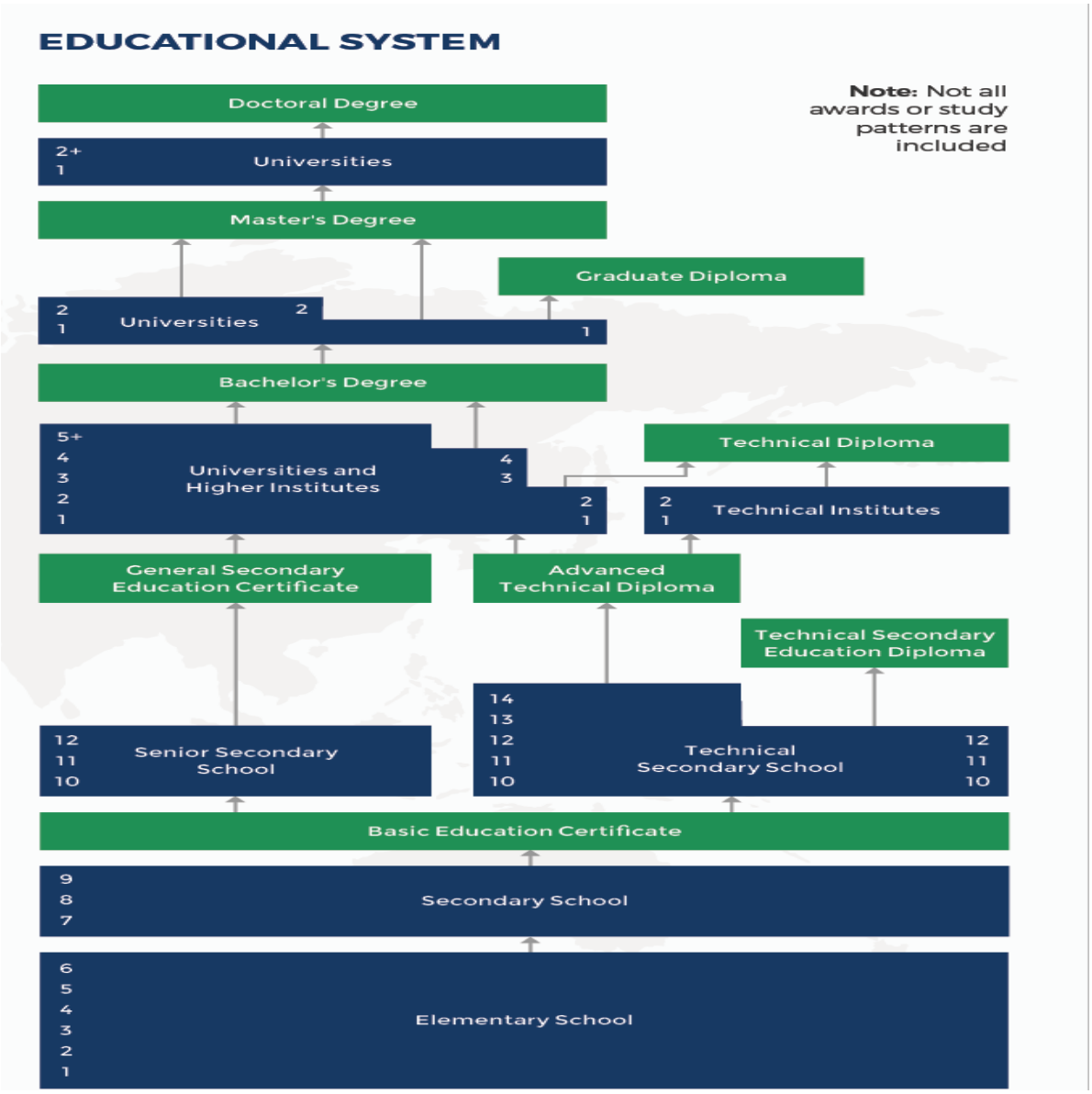
Egypt has the largest education system in the Middle East and North Africa, with more than 20 million students in pre-tertiary education. According to the UNESCO Institute for Statistics, there are 12.2 million elementary students, 8.9 million secondary students, and 2.8 million tertiary students. The Egyptian educational system is divided into 3 stages:

1. Basic Education (ages 4-14): includes Kindergarten for two years, primary school for six years, and preparatory school for three years;
2. Secondary school (ages 15 to 17): for three years and it is divided into technical and general. The first is a vocational education that prepares students to enter the job market directly as a technician or as an employee in a skilled craft, industry or trade. The general is divided into two sections, humanities and sciences, and it ends with the exam of Thanawya Amma (General secondary certificate) that gives access to the next level, i.e. the university. There are additional educational programs, along with the national curriculum, such as the American High School Diploma, the British IGCSE system, the French baccalaureate, the German Abitur, and the International Baccalaureate. These are the types of private schools in Egypt.

   Regarding these two previous stages, the main actor is the Ministry of Education and Technical Education.
3. Tertiary level: bachelor's degree, master's degree, and doctorate. Usually, the bachelor's degree takes from 4 to 7 years. For example, in the domain of humanities, a bachelor's degree can be obtained in 4 years, Engineering is 5 years, medicine is 5 to7 years. To continue a master's degree, it is usually needed to pass a diploma of higher studies for 1 year and then the master dissertation for 2-3 years. A doctorate is in general for 3 to 5 years and it requires a master's degree to access it. The tertiary level is supervised by the Ministry of Higher Education and Scientific Research.

The Egyptian educational system is highly centralized. Egypt's 2014 constitution states that education is compulsory until the completion of secondary stage or its equivalent. It also specifies that the state shall allocate 4 percent of the Gross National Product to school education, in addition to 2 percent to university education. These percentages are to be increased on annual basis in order to reach global public spending levels (Egypt′s voluntary national review , 2018, p. 30). Moreover, all levels of education are free within any government-run schools. There is high density for all levels of education, especially for primary and secondary: the high and increasing (from 42.7 in 2016/2017 to 43.7 in 2017/2018) average number of students per class raises concerns about the quality of the education being provided. High class densities have an adverse impact on comprehension and knowledge transfer (Ibidem). There are great differences between the education provided in public and private institutions, also known as the "wealth gap" (World Bank, 2007, p.5). As we mentioned above, the overall literacy rate in Egypt is 71.2 percent as of 2020; that is 76.5% for males and 65.5% for females. Thus, there is a special attention given by the government and other NGOs to reduce gender disparity in education. There are also major issues with equal access to learning opportunities for those living in poverty and in rural areas of

the country. Poor communities suffer from low education quality and digital poverty, i.e. they have difficulties to access to modern-day educational privileges. In addition, they are not always given enough attention, not updated in terms of offered opportunities, and not enough included in the overall system. That situation negatively affects them, especially in situations like the outbreak of the pandemic, in which access to technology has been the key to continuing education in the form of distance learning.



Source: World Education News + Reviews (Ramage *et.al.*, 2019)

There is a strategy for developing Education in Egypt in line with the SDGs. The strategy's pillar is divided into three levels: general education (primary and secondary), technical education, and higher education (university and postgraduate education). Launched on May 2018 by the Ministry of Education and Technical Education, the strategy aims to provide access to education

for all, to create a relevant and quality educational system with international standards, and to help develop opportunities for students to learn, think, and innovate. The strategy aims to restructure the teacher payment scheme to better improve their living conditions. Development training programs will also be provided to teachers to raise their teaching abilities. Education technologies will be more implemented to help teachers become more effective and make classroom learning more relevant. The system will be transformed gradually from textbooks to digital learning materials which will be accessible to students and teachers. In parallel, a new generation of schools, for example. the "Nile Schools" and the "Egyptian-Japanese schools," are being offered for students at the primary, preparatory, and secondary stages. These schools aims to create a model to be applied to the rest of schools once the experiment arrives to a certain level of success, as in the case of the Nile schools, and to engage with other models exported from advanced countries like Japan. In addition, a special attention is given to the development of technical education recognizing its importance in fulfilling the needs of the Egyptian labor market and tackling its inefficiencies (Egypt′s voluntary national review , 2018, pp. 30-31).

3. Education during the pandemic in Egypt (academic year 2019/2020)

Covid-19 situation in Egypt till the end of 2020

Arrival date	14 February 2020
Confirmed cases	146,809
Recovered	116,775
Deaths	8,029
Fatality rate	5.47%
Territories	Cases in 27 Governorate

(Source: Ministry of Health and Population)

On March 15th Ministry of Education decided a temporary closure of all schools for two weeks and classes were moved online. On May 13th they announced that schools will be reopened on the next academic year on mid-September 2020. The ministry undertook a series of decisions regarding the exams: from G3-G9 have to submit a research project either individually or in a group of maximum 5 students in the same school. The same happened for the universities: classes moved online and students have to submit research papers in place of the exams. In order to assist students in their research assignments and learning development, the Ministry made available the Egyptian Knowledge Bank resources. The "Nile" Specialized Educational Channels, which are owned by the government, was set to provide an all-day learning platform for students across all grades. Edmodo, a US-based virtual education platform has been adopted to help build the

virtual learning platform in Egypt, allowing teachers and students to directly communicate and facilitate the learning experience. However, there was that issue regarding the exam of Thanawya Amma (required to access university) and the technical diploma examinations. Ministry of Education and Technical Education insisted on holding these exams in presence. There was a lot of opposition against that because of the high numbers of students and many hashtags were launched online against that decision, but in the end, after postponements and ups and downs, the exams were held in presence. The Ministry was successful in conducting Thanaweya Amma examinations for more than 652,000 students, as well as technical diploma examinations for more than 776,000 students for the academic year 2019/2020. The Ministry also succeeded in evaluating around 19 million research projects pertaining to students across all stages, in addition to holding online electronic exams for around 1.2 million for high school students (Matouk, 2020).

4. Pandemic as an opportunity for developing the educational system in Egypt

The closure of schools as a consequence of the pandemic outbreak had a huge impact on the students, teachers, and families. The results of the pandemic on the educational system in Egypt affected the system in both negative and positive ways. Some school subjects have been shortened, the situation was not the best for the poor communities which did not have access to the internet. Besides, there was a sort of criticism to the grading based on the alternative methods implemented by the government. Although we tend to think that the situation has a positive side, on which we would like to focus in this research. The pandemic forced the government, represented in its main actors, to undertake decisions and procedures to develop the educational system to be able to face the situation. It was an opportunity to revise the system and rebuild it in a way to be able to confront similar situations. The pandemic inspired innovation within the system to promote finding and delivering solutions that guarantee a quality education to those most affected. It also highlighted more than ever the importance of accelerating the process of digitalization in Education as well as in other governmental services. Many initiatives have been developed to face the repercussions of the crisis with the aim of coming up with solutions and alternatives to the crisis using science and technology. The idea of research papers as an alternative to written exams at the basic level is useful in terms of spreading the culture of scientific research among school students.

Besides, to alleviate social and economic dilemmas, the Ministry of Education and the Ministry of Higher Education are focusing on introducing a hybrid education system to be implemented during the 2020/2021 academic year. Some projects and initiatives have been created to be implemented during academic year 2020/2021 (Matouk, 2020):

- Learning Management System (LMS) shall be launched to facilitate direct communication between teachers and students and to virtually monitor student's performance and efficiently distribute learning materials;
- Every Child Connected Project: to provide more students around Egypt with electronic devices to enable accessibility to the e-learning experience;
- Educational TV channels shall be put in service to ensure accessibility to students across the country;
- Training and development programs for teachers are to be implemented for all teaching and administrative staff in order to ensure quality education to be offered to students. The training is to update teachers, academic, and administrative staff on how to operate the new educational platforms such as LMS and Edmodo; as well as cover how to conduct online classes in effective ways and to improve the process of communication with students.

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Case of Croatia

Dora Tot

1. Introduction

The Republic of Croatia, a medium-sized country in Southeast Europe, promptly responded to the spread of the new SARS-CoV-2 virus on its territory. It quickly became clear that the population of 4 million will have to adapt to the situation where physical contact needs to be reduced to a minimum. In these circumstances, Croatian citizens have identified the potentiality of digital technologies in lowering the effects of the pandemic. Therefore, one of the primary concerns was to make a rapid switch to digital channels of daily social, professional and cultural activities.

Amid the COVID-19 pandemic, published were studies depicting the status of Croatian digitalization level. These showed that the country is at the very bottom of the global digital competitiveness rankings. For example, the IMD World Digital Competitiveness Ranking placed Croatia 52nd among 63 countries of the globally leading economies (IMD – Svjetska ljestvica talenata, 2020). Similar results the country achieved on the level of the European Union. The Digital Economy and Society Index (DESI), published by the European Commission, ranked Croatia as 20th out of 28th member countries (Sandalić, 2020). According to similar independent research on the matter conducted by the company Surfshark, Croatia was ranked 34th out of 85 countries worldwide based on their Digital Quality of Life Index for the year 2020 (Surfshark, n.d.).

Although it has one of the fastest mobile internets, Surfshark's study showed that its stability is poor (Surfshark, n.d.). However, Croatia performed slightly above the EU average concerning the overall coverage with broadband internet on the national territory. Such a thing is important because adequate infrastructure is a prerequisite for accessing digital education and public e-services. Concerning the former, a positive trend was recorded related to the e-administration (platform e-Građani), which utilizes 75% of Croatian internet users (Sandalić, 2020).

The DESI equally demonstrated that a fifth of the overall Croatian population is not actively engaging in Internet services. Nevertheless, the number and the demand for IT experts in the country are increasing. At the same time, the government augmented investments in the human capital prioritizing digital skills (Sandalić, 2020). Concerning this, in March 2015 started the programme „E-Schools: Complete informatization of school business processes and teaching processes to create digitally mature schools for the 21st century" (Program e-Škole, n.d.).

Unexpectedly, the circumstances of the pandemic not only accelerated this process but also revealed the importance of digitalization of educational institutions (Dokler, 2020).

2. Educational System

The responsible government body for primary, secondary and tertiary education in Croatia is the Ministry of Science and Education. There are both public and private educational institutions. The main difference is that the latter can decide on their curriculum in addition to the one prescribed by the state (Krbec, 1999).

Primary education in Croatia is compulsory. It lasts eight years, which is equivalent to the eight schooling grades. Children begin school at the age of six or seven and complete at fifteen. Simultaneously, children may attend primary education in the form of elementary art education. Those are primary music education and primary dance education, which last six and four years, respectively. The primary education has two stages: from 1st to the 4th grade, where one teacher teaches almost all subjects to only one class, and from 5th through 8th grades, different teachers teaching different subjects (Ministarstvo znanosti i obrazovanja, n.d.a).

After completion of primary education and according to their grades, students can enrol in a secondary education programme, which is still optional in Croatia. Depending on the programme, there are three models of secondary schools – gymnasiums, vocational schools and art schools. Gymnasiums offer four different streams – general, classical, scientific and linguistical. Schooling lasts four years and the purpose is to prepare students for continuation of education at the tertiary level. To complete gymnasium education, students have to pass the exit exam (Matura). It consists of three compulsory subjects – First (native) Language, Mathematics and Foreign Language or/and Classical Language. Differently, vocational schools prepare students to enter the labour market, teaching specific skills. It lasts from three to five years. Another option is available to students talented in arts, such as music, dancing or visual arts, who can proceed secondary education at art schools which take four years (Ministarstvo znanosti i obrazovanja, n.d.b).

Tertiary education conduct institutions of higher education, which are universities, polytechnic schools and colleges. The prerequisite for enrolment decides the institutions, such as optional subjects at the exit exam (Matura) or an entry exam and determined students' scores. University study programmes include three levels: undergraduate programme (BA) of three or four years, graduate programme (MA) of one or two years and postgraduate programme (PhD) which usually lasts three years or postgraduate specialist study lasting one to two years. Similarly, polytechnic schools and colleges perform professional study programmes. Those encompass short

professional study lasting from two to two-and-half years, undergraduate professional study of three to four years and specialist graduate professional study programme lasting one to two years (Ministarstvo znanosti i obrazovanja, n.d.c).

3. Measures at the Educational Institutions

After the first person in Croatia tested positive to SARS-CoV-2, protective measures against the spread of the virus were first implemented at the border controls. The coordination of activities related to COVID-19 emergency took over The National Civil Protection Headquarters led by the Minister of Interior Affairs. They had daily media appearances reporting the situation and protective measures to the citizens. In the second half of March, the National Headquarters introduced lockdown on the national level. The first phase of easing pandemic measures to restart the economy came into force end of April (Ravnateljstvo civilne zaštite, n.d.).

On 16 March 2020, all educational institutions were closed. Higher education students, students from the 5th to the 8th grade of primary school and all secondary school students attended classes online. For children from 1st to the 4th grades, the Ministry of Science and Education with Croatian Radio-Television organised distance learning TV programme, broadcasting lectures in all school subjects (Cvrtila, 2020). All shows were regularly uploaded and made available on the YouTube channel "Škola na Trećem" (Škola na Trećem, n.d.).

After the standstill during the summer period, in September started the "second wave" of the coronavirus pandemic in Croatia. Primary and secondary educational institutions could choose one of three teaching models, according to the epidemic situation in individual school or county (region): model A – live, model B – mixed or model C – online. Classes which reported COVID-19 case(s) were obliged to switch the lectures online. Because the number of infections was rapidly growing, measures were adopted in November and December that introduced a partial lockdown on the national territory. From 14 December, all secondary schools transferred to the C model of teaching (online) (HINA, 2020). These steps shortly after followed many primary schools based on the decisions of the counties (Bradarić, 2020; Zagreb.info, 2020).

In the new academic year 2020/2021, the Croatian Institute of Public Health and the Ministry of Science and Education issued recommendations for higher education institutions for teaching in the period of the COVID-19 pandemic. Each component of the university (faculties and academies) was able to autonomously decide upon the model of teaching – online, live or mixed (Srednja.hr, 2020). End of November, the recommendation was revised in favour of the transition to online learning (Hrvatski zavod za javno zdravstvo, 2020). Consequently, more and more institutions opted for the online class (Anja, 2020).

Differently from the previous semester, many education institutions managed to organise online teaching via platforms such as Microsoft Teams, Zoom or Big Blue Button, instead of remote (distance) learning (Kovačević, 2020). Even though it could not replace classroom interaction, this allowed students to have an online teaching experience more similar to the one in a classic classroom.

4. Pandemic as an opportunity for developing the educational system in Croatia

Despite multiple negative effects on society and the economy, the coronavirus crisis increased and accelerated the process of digitalizing the Croatian education system. Also, it drastically changed the way educational institutions work.

The introduction of digital content and technologies into the primary and secondary school system at the national level has begun several years before the crisis – in 2015 with the project "e-Schools". Some of the actions include: installing wireless local area networks in all schools, equipping selected classrooms with digital technologies, use of e-services and e-contents, distribution of laptops to teachers and teaching assistants and strengthening the digital competencies of teachers, and indirectly students. The project has envisioned a digital transformation of schools by the end of 2022 (Smrekar, 2020).

The project e-Schools is part of The Strategy for the Digital Maturation of Schools and the School System 2030, which bases on the national Education, Science and Technology Strategy and is related to the implementation of The National Development Strategy of the Republic of Croatia 2030. In the EU and global perspective, it is in relation with the Digital Education Action Plan 2021-2027 and the UN Agenda for Sustainable Development 2030, with particular regard to Sustainable Development Goal 4, which is to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (Strateški okvir, 2020).

Indeed, the pandemic has brought up the topic of socioeconomic inequality of students and revealed the problem of lack of digital infrastructure in parts of Croatia. Still, some students at home do not have Internet access, computers and other technology or even electricity (Dokler, 2020). Therefore, this could be seen as a catalyst for a potentially positive change to enable all students equal learning opportunities.

Although distance learning technology has been around for years, distance learning and teaching was the most important novelty in the Croatian education system. This type of teaching carries certain advantages. One of the most obvious is that it allows easy access to participants regardless of the location. Also, there are positive outcomes directly related to teachers. Lecturers who were previously sceptic or non-familiar with digital technologies had no other option but to

engage in their application and possibly changed their attitude. Moreover, both teachers and students improved or learned a new set of digitals skills (Dokler, 2020).

As such, the coronavirus pandemic created unforeseen situations in the educational system, which can be regarded as opportunities for positive changes, development of skills and demonstration of the importance of digitalization for the whole society.

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(The author accessed all references on 21 January 2021)

Case of Germany

Igor Bröckel

1. Introduction

The Federal Republic of Germany is a country in Central and Western Europe. Covering an area of 357,022 square kilometres, it lies between the Baltic and North seas to the north, and the Alps to the south. It borders Denmark to the north, Poland and the Czech Republic to the east, Austria and Switzerland to the south, and France, Luxembourg,Belgium and the Netherlands to the west. Germany is a federal, parliamentary, representative democratic republic. Federal legislative power is vested in the parliament consisting of the *Bundestag* and *Bundesrat*, which together form the legislative body (destatis, 2021).

The *digital divide* (digital divide, 2021) in Germany refers to the ever-growing gap between members of society without computer or Internet access and those with access. There are several factors contributing to the digital divide in Germany, including age, gender, family structure, education, ethnicity, and motivation (moirahouse, 2021). Despite a large market of Information and Communications Technology (ICT), there are still areas that don't have access to high-speed internet. Internet access is more available in big cities compared to rural communities. The German government has taken initiative to increase internet access through the rural communities by adding free internet access throughout the communities, as well as, increase internet education in schools.

While, overall, Germany's ICT market is the fourth largest worldwide (make it in germany, 2021) and the largest in Europe, high-speed internet is hardly seen in its more rural areas (dw, 2021). ICT includes any devices and systems utilized in digital technology and communication. The ICT market also involves the buying and selling of these devices and systems. Germany's ICT market grew significantly between 2004 and 2014. Revenue from foreign exports in ICT services jumped from $10.2 billion to $25.8 billion (moirahouse, 2021). In 2014 alone, revenue from foreign exports in ICT hardware and consumer electronics that were made in Germany reached $37.3 billion (mourahouse, 2021). Market researchers predicts a compound annual growth rate of 5.5 percent between 2016 and 2019. While Germany's ICT market is succeeding globally, within the country itself, ICT success is mainly only prevalent in the larger cities (dw, 2021).

Germany differs from most other countries in that the digital divide cannot be significantly attributed to disparities in infrastructure. Generally, rural areas are placed at a much higher price point for high-speed Internet access as opposed to urban areas. However, the German digital divide

is regionally affected by attainable benefits of Internet access (Schleife, 2007). The regional differences are not so much due to geographic barriers, but instead revolve around the different subgroups of the population that make up each region. Germans of all ages are using more and more social networks in past years, a strong indicator of a diminishing digital divide. From 2010 to 2013, the percentage of German citizens over the age of 65 using social networks increased from 50 percent to 66 percent (warc, 2021).

2. Educational system in Germany

Education in Germany is primarily the responsibility of individual German states, with the federal government playing a minor role. Optional Kindergarten (nursery school) education is provided for all children between one and six years old, after which school attendance is compulsory (destatis, 2021). The system varies throughout Germany because each state decides its own educational policies. Most children, however, first attend *Grundschule* (primary or elementary school) for 4 years from the age of 6 to 9. Germany's secondary education is separated into three main paths, *Hauptschule*, *Realschule* and *Gymnasium.* The first two schools prepare the students for a vocational education and training. The third option prepares students for a higher academic education.

2. Corona pandemic in Germany

On 27 January 2020, the first case in Germany was confirmed near Munich, Bavaria (Spiegel, 2020). On 25 and 26 February, multiple cases related to the Italian outbreak were detected in Baden-Württemberg. A large cluster linked to a carnival event was formed in Heinsberg, North Rhine-Westphalia, with the first death reported on 9 March 2020 (kreis-heinsberg, 2020). New clusters were introduced in other regions via Heinsberg as well as via people arriving from China, Iran and Italy, from where non-Germans could arrive by plane until 17–18 March.

From 13 March, the pandemic has been managed in the *protection stage* as per the RKI plan, with German states mandating school and kindergarten closures, postponing academic semesters and prohibiting visits to nursing homes to protect the elderly. By 22 March, curfews were imposed in six German states while other states prohibited physical contact with more than one person from outside one's household. On 13 April the German National Academy of Science recommended re-opening of classroom primary and lower-level secondary education as soon as feasible, with observation of hygiene and physical distancing measures (Leopoldina, 2020). Given

the regional coordination of the educational system schools re-opened in different states at different times. But schools re-opened around May.

Every second school in Baden-Württemberg reported great difficulties getting through the Corona crisis, according to the result of the forsa survey commissioned by the Association for Education and Upbringing (VBE) (bildungsklick, 2020). When asked what the biggest school challenges are as a result of the pandemic, around 40 percent of school administrators stated that the schools and students were inadequately digitally equipped. The study shows that in two thirds of all schools no class sets are available on tablet PCs or smartphones. Another result is that in Baden-Württemberg there is no nationwide access for schools to the Internet.

Teachers also see the lack of digital equipment for schoolchildren as the greatest challenge with a view to the school closure, based on a survey of around 1000 teachers at the beginning of April for the German School Barometer Special on the Corona Crisis (Anders, 2021). In second place of the most frequently mentioned problems is the lack of experience in creating digital teaching content.

The most frequently used task format is therefore the classic task sheet, even in remote learning. A total of 84 percent of teachers say they use this format during the school closings. However, digital formats are often added. 39 percent of those surveyed use explanatory videos, 17 percent use digital presentations and 14 percent of the teachers convey the subject matter in video conferences.

According to the study, the frequency with which teachers use digital formats depends heavily on the type of school. Secondary school teachers use video conferencing, tutorials, or presentations far more often than primary school teachers.

Direct communication between teachers and students is by no means a matter of course when the school is closed. Overall, 37 percent of those surveyed say that they have regular contact with "less than half" or even only with "very few students".

A survey by the Nuremberg Institute for Employment Research (IAB) (tagesschau, 2020) among pupils in the upper school grades shows that the young people received teaching materials from the respective school at least once a week. For 47 percent of those surveyed, this happens daily, for another 47 percent at least once a week. The contact between teachers and young people takes place through various channels, some of which are used in parallel. Online platforms and emails in particular are used by schools, according to the IAB study.

More than a third (37 percent) of the students in upper secondary schools stated that they spend less than two hours working on tasks or digital lessons every day. Also the study by the Ifo Institute (Wößmann, 2020) shows that the learning time of students was halved during Corona. In addition to the problems already mentioned, such as a lack of online lessons and a lack of contact

with the teachers, the students suddenly found it difficult to work independently.

5. Pandemic as an opportunity for developing the educational system in Germany

Educational researchers are still divided on whether the corona crisis will provide a boost to digitization in the long term or whether it could rather bring about a return to analog learning.

Critics of digitization in schools say that homeschooling shows "the limitations of the digital". Teachers are indispensable. No video conference can replace the dynamic of real lessons. Human interaction is a part of school life. In addition, digital media would widen the gap between stronger and needy students, who receive less support from their parents and are less able to use digital offers. The experts in the national education report also fear that the pandemic could exacerbate social inequalities in education.

Proponents, on the other hand, see current developments as a great opportunity for digitization in schools. In the future, however, one must concentrate more on the training and further education of teachers so that teachers can use digital learning tools and platforms safely and sensibly. Digital learning platforms and educational content should also find their way into schools in the long term. Experts also emphasize that a holistic, transnational strategy is necessary to ensure a sensible mix of face-to-face and distance teaching.

In the 2020/21 school year it is still difficult to say how far the digitization is in schools. Because there are hardly any government surveys. The ministries of culture refer to the municipalities as school authorities, who organize the equipment themselves (Eberl, 2020). Digital backlogs are still complained about - both in distance learning and digital learning in face-to-face teaching - for example by the educational associations (Sueddeutsche, 2020).

Funding is available for digital learning in schools (digital pact school with five billion euros from the federal government, another 500 million from the federal states, another billion has been added due to Corona). However, the infrastructure is still missing. So far, only a fraction of the funds have been called (Stalisnki, 2020).

At the so-called school summit in September 2020, the federal government and ministers of education agreed on faster digitization of schools and closer cooperation:

- Avoidance of further school closings;
- Equipping the 800,000 teachers in Germany with work laptops;
- Data flat rate for students over ten euros per month;
- Training and financing of IT administrators for school technology;
- Implementation of a nationwide education platform and a digital competence center for further training of teachers in handling digital teaching material.

In Baden-Württemberg, as much classroom teaching as possible is to be implemented in the 2020/21 school year. According to (Tagesschau, 2020), 86 percent of those surveyed spoke out against school closings in November 2020, but schools and daycare centers have been closed since mid-December as part of the lockdown.

Previously, due to the increasing number of corona cases, more and more schoolchildren were in corona quarantine (as of mid-November 2020). Across Germany there were more than 300,000 students, according to the German Teachers Association. In November 2020, a total of 436 classes at 354 schools in Baden-Württemberg were taken out of attendance due to Corona - at 110 of these 354 schools, only individual students were in quarantine, according to the Ministry of Education and Research. Five schools have been completely closed, which corresponds to 0.1 percent of the schools in the state. In relation: In Baden-Württemberg there are a total of around 67,500 classes and around 4,500 schools (km-bw, 2020).

To make distance learning more successful, 300,000 pupils who do not have a digital device at home should be able to borrow a laptop or tablet at the school. For this purpose, further federal funds are available in the course of the digital pact for schools, which were additionally increased by the state.

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Case of Japan

Masayo Watanabe

1. Introduction

The pandemic of COVID-19 has compelled all over the world to change the way of education. The environment for education, which was considered to be ordinary before the pandemic, has been changed or lost in many countries, where education entities were closed and their classrooms were left vacant for a certain period. Japan is one of such countries. In this report, we will see how the pandemic has influenced on the education in Japan.

First, we confirm the general information of Japan. Japan is an island country in East Asia, a representative democratic constitutional monarchy, which is made up of 47 prefectures as local public entities. The population of Japan is 125,710,000 (preliminary counts as of 01 December 2020) of which about 29 % are 65 years old or over (Statistics Bureau of Japan, 2020). Being close to China, Japan began to be affected by COVID-19 relatively early. The first case of the COVID-19 in Japan was confirmed on 16 January 2020. The first wave of the COVID-19 appeared in April. The Prime Minister declared the state of emergency designated for 7 prefectures including Tokyo on 7 April, which was made nationwide on 16 April and finally lifted on 25 May. The second wave was from the end of July to August and the third one appeared in November. The total of the positive cases is 275, 554 and that of the death toll is 3,955 as of 08 January 2021 (NHK, 2020-2021). The last basic information we should see in advance is the internet penetration rate since the digitalization is a key to keep education under the influence of the pandemic. 89.8 % of the population in Japan have access to the internet, and 67.6 % possess their own devices to use the internet as of September 2019 (MIC, 2019 a, b).

2. Education system in Japan

Ministry of Education, Culture, Sports, Science and Technology (MEXT) is responsible for the education in Japan. As for the primary and secondary education, the Municipal and Prefectural Boards of Education are practical actors, which are subordinate to MEXT. The school year runs from April.

- **Primary education**: Kindergartens for children aged under 5 years do not come under compulsory education. Children aged 6 to 12 receive compulsory education at elementary schools (MEXT, 2013).
- **Secondary education**: The three-years education at junior high schools (age 12-15), regarded as the lower secondary education, is also compulsory education. The upper secondary education is not compulsory but 98.8 %, as of 2019, of the junior high school students go on to the next level of education (MEXT, 2020 e), which is mainly another three-years education at high schools (age 15-18). Some students choose colleges of technology (age 15-21) of which the upper grades are considered to be tertiary education (MEXT, 2013; MEXT, 2020 a). The tuition fees for the upper secondary education can become gratis according to the household income (MEXT, 2020 b).
- **Tertiary education**: The higher education is generally divided into three kinds: universities (four years), specialized training colleges (one to four years) and junior colleges (one to three years). As for universities, after four-years undergraduate education, students can go on to graduate schools which typically lasts two years for master's degrees and three years for doctoral degrees (MEXT, 2013).

Digitalization in education

Every level of education was seldom digitalized before the pandemic owing to insufficient supply of equipment. As for the primary and secondary education, 4.9 students need to share a computer which the schools are equipped with. The penetration rate of wireless network in the schools is 48.9 % as of 1 March 2020 (MEXT, 2020 f).

3. Policy measures and impact of these policies

3.1. Primary education

On 27 February 2020, the Prime Minister asked all schools to close from 2 March until the spring vacation which usually starts at the end of March. The school closure ultimately lasted for three months since the state of emergency declared on 7 April was extended until the end of May. During the school closure, children learned at home with those teaching materials which were given from their schools (MEXT, 2020 c). 24 % of the primary and secondary schools utilized educational TV programmes and only 5 % provided live streaming classes during the school closure (ReseEd, 22 April 2020). 99 % of the elementary schools had restarted as of 1 June. The

digitalization has hardly been done in the schools as it was before the pandemic. MEXT declared that each student should be provided with their own computers by March 2021 (ReseEd, 12 December 2020).

3.2. Secondary education

Junior high and high schools were also closed according to the demand made by the Prime Minister. Students continued their learning at home basically with the paper-based teaching materials. The rate of the schools having utilized digital teaching materials during the school closure is low as shown in the preceding paragraph. 99 % of the junior high schools and 96 % of the high schools had restarted as of 1 June. Like elementary schools, the digitalization has not been done sufficiently and MEXT says that computers will be provided for every student by March 2021 (ReseEd, 12 December 2020).

3.3. Tertiary education

After the declaration of the state of emergency, over 80 % of the universities postponed the start of regular classes and decided or planned to start distance learning classes according to the survey of MEXT on 10 April. MEXT allocated supplementary budget to universities, as it did to schools, for ensuring learning opportunities by sanitizing their buildings and digitalizing classrooms, and to university students who were adversely affected and need financial support for their continuing studies. Besides MEXT, individual universities embarked on supporting such students.

The average tuition fees at national universities in Japan is 500,000 yen and those at private universities is 900,000 yen. Students who have no opportunities to attend on-campus classes and use universities' facilities asked universities to reduce the tuition fees with collected signatures of those who agreed with them (NHK, 29 April 2020).

	In-person classes	Combination of in-person and distance learning classes	Distance learning classes
National univ.	1.2%	64.0%	34.9%
Public univ.	7.8%	70.6%	21.6%
Private univ.	17.6%	59.7%	22.7%
Colleges of technology	33.3%	40.4%	26.3%
(Overall)	16.2% (173 schools)	60.1% (642 schools)	23.8% (254 schools)

* The population is the number of universities (1,069) responding that they are conducting classes as of July 1.

Rates table of the ways in which universities conducted classes as of 1 July 2020 (MEXT, 2020 d, p.16).

As of 1 July, all universities had started their spring semester. 83.8 % of universities offering classes were conducting distance learning classes in some way (MEXT, 2020 d). Since September, universities have reopened their campus

for hybrid lectures (online and in person). The dropout rate among university students does not increase as of October 2020 compared with that of last year (Yomiuri Shimbun, 17 October 2020).

4. Pandemic as an opportunity for developing the educational system in Japan

In December 2019, MEXT announced GIGA (Global and Innovation Gateway for All) School Program for primary and secondary education, which ensures "one computer per student with a high-speed networks in schools", bringing optimized and creative learning to all students who will later live in Society 5.0 (MEXT, 2019). All Students had been supposed to possess their own computers for learning by March 2024, which was moved ahead by three years due to the spread of the COVID-19. By March 2021, "one computer per student" is planned to be realized in the primary and secondary education. As for the tertiary education, universities are likely to adapt themselves to the digitalization of education earlier than schools since 83.8 % of universities already provided distance learning classes in July, whereas 5 % of schools could provide online classes during the school closure. The pandemic did prompt education entities to make their digitalization projects run urgently, which were already planned before the pandemic but were seldom realized. The environment for digitalized education is supposed to be kept and improved in every level of education for the future in case the pandemic reappears.

Not only the digitalization but also the reform of the school year was considered owing to the pandemic. The school closure from March to May caused a proposal that the new school year should start in September like many other countries, rather than April. The Education Minister denied an immediate shift to beginning in September but said that universities should generally, in times to come, admit both April and September enrollment which some universities have already adopted for the international fluidity of students (FNN Prime Online, 22 October 2020).

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Case of South Africa

Gerhard Kirsten

1. Introduction

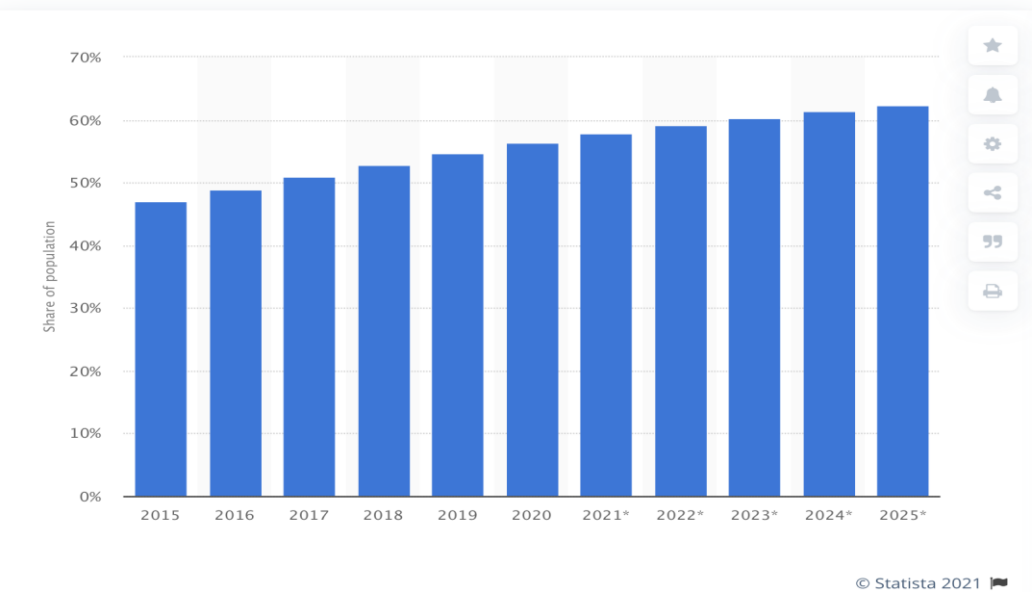
Across the world, Covid-19 is disrupting children's education, learning and wellbeing in substantial ways, and the effects on children and young people has long term implications. The United Nations (UNICEF, 2020) distinguishes three channels through which these effects may manifest, one of which is the longer-*term efforts to achieve the Sustainable Development Goals* (SDGs) to ensure the realisation of the rights of all children: This relates especially to SDG4 – *to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.* Restricted access to schooling and finance for education during the pandemic undermines the global prospects for the development of children.

This is very true for South Africa - the Covid-19 pandemic caused the many role-players in the education sector to make complex and difficult decisions - including the closure of schools and the move to online learning. However, the pandemic brought the inequity and inequality in South Africa's education sector into sharp focus. As an example, poorer learners had little access to online facilities – they did not have access to either hardware of software; and a large percentage of South Africa's school going population live in rural areas without access to internet networks.

2. An overview of South Africa's progress with digitization

An article by Lesame (2020) shows that most South Africans have access to and use mobile phones, and that access to and use of the other ICT including landlines, computers and the Internet still needs to be improved if South Africa is to be a real information society. While cyber cities such as Cape Town have ample access, most towns and rural areas, including schools, lack ICT infrastructure and services. South Africa plans to complete its broadcasting digital migration process by 2015. The country, therefore, has one year (2014-2015) to improve public access to broadcasting services and fully digitise broadcasting services.

Internet user penetration in South Africa 2015 - 2025



3. South Africa's education system – institutional arrangements

South Africa has two national departments, namely the department of Basic Education (DBE), which is responsible for primary and secondary schools, and the department of Higher Education and Training (DHET), which is responsible for tertiary education and vocational training. The Department of Basic Education deals with public schools, private schools (also referred to by the department as independent schools), early childhood development (ECD) centres, and special needs schools. The Department of Higher Education and Training deals with further education and training (FET) colleges now known as Technical and Vocational Education and Training (TVET) colleges, adult basic education and training (ABET) centres, and higher education (HE) institutions, i.e. universities.

4. How South Africa's education sector responded to the Covid-19 pandemic with specific reference to digitalization

4.1 Primary education (kindergarden)

The NIDS-CRAM study by Wills et al (2020) suggests that over four months after the closure of early childhood development (ECD) programmes on 18 March 2020, the ECD sector is likely to be operating at less than a quarter of its pre-lockdown levels. This dramatic contraction in the ECD sector relates to prohibitive costs to reopening 'safely' imposed by the regulatory environment, coupled with reduced household incomes and parent fears of children contracting Covid-19). When viewed from a broader socio-economic lens, the threat of ECD programme

closures across the nation will have impacts beyond ECD operators to the lives of millions of children, millions of households and millions of adults who rely on these ECD services.

4.2 Secondary education (schools) measures

South Africa's schools closed on the 18th of March 2020 in response to the initial spread of Covid-19, and after that a phased approach to reopening schools was adopted by the government. The closure of schools in South Africa was heavily debated, mainly because it was to the benefit of the rich and not the poor. The National Income Dynamics Study Coronavirus Rapid Mobile (NIDS-CRAM) survey found that inequality in basic education increased during the lockdown. Middle-class children were twice as likely to attend school (using digital technologies) as those in no-fee schools. Van der Berg's (2020) motivation for physical reopening schools put the spotlight on the inequality of the education system:

- Even before the lockdown, 2.5 million children suffered starvation, and about a third of child deaths were linked to malnutrition. School feeding programmes are an important means of addressing food insecurity among children in schools. When malnourished children lose access to school meals, more lives could be lost.
- Lockdowns, school closures and natural disasters increase the risk of substance abuse, depression, fear, loneliness, domestic violence and child abuse. Financial worries add stress to many households, raising levels of emotional exhaustion, depression and anxiety.
- Teachers would be unable to complete the curriculum, leaving many gaps in children's education. International research shows that such learning losses could have lasting implications, even affecting lifetime earnings.

However, it was also very difficult for schools in poorer areas to reopen, since government required all schools to meet strict protocols before they could reopen, revealing, according to Mohohlwane et al (2020) long-standing infrastructure issues such as a lack of access to water and sanitation, making it impossible for schools to open safely.

4.3 Higher education (college and university level) sector and measures

The PSET (post school education training) system in South Africa consists of about 2.5 million students and staff. On 15 March 2020 Dr Blade Nzimande, the Minister of Higher Education, Science and Innovation, announced the suspension of academic activities in the PSET sector, and associated institutions went into early recess. The Department acknowledged the importance of access to ICT for online learning and a ministerial task team was set up to oversee

the zero-rating of URLs for educational purposes. They developed a National Open Learning System, and the State Information Technology Agency migrated it to an operational site where lecturers and students could upload learning materials.

The Minister also issued a notice on the provision of essential goods and services for higher education - including devices (e.g. laptops and modems) for online and blended teaching and learning; chemicals for the preservation of biological materials; food for laboratory animals; and hard copies of printed learning and teaching support materials, including textbooks and stationery, together with digitally stored materials. The transport of learning and teaching support materials was declared an essential service (DHET, 2020a).

From 1 June 2020 students funded from the National Student Financial Aid Scheme and Funza Lushaka obtained 10 GB daytime and 20 GB night-time data subsidised by government. Plans to zero-rate the local educational content of private and public universities and TVET, community education and training, nursing and agricultural colleges were advanced. Access to these institutional websites would be free of charge, although embedded content (e.g., YouTube videos) might incur charges. Universities reached individual agreements with mobile network operators and provided them with students' details (DHET, 2020f). Nationwide zero-rating of a number of educational websites was announced on 5 June (DCDT, 2020). However, not all websites were zero-rated (including Zoom, for example). High data costs made remote learning impossible for many students, especially if they needed to download videos and materials from non-zero-rated websites.

5. Pandemic as an opportunity for developing the educational system in South Africa

The outbreak of COVID-19 came as a wake-up call to the education sector in South Africa, for primary, secondary, and tertiary education. The pandemic has fast-tracked the move towards digital transformation in the education sector. A study by Mhlanga, D. and Moloi, T (2020) investigated how the education sector adopted the use of 4IR tools during the Covid-19 lockdown period. They found that, during the lockdown, the South African education sector massively adopted different 4IR tools (digital transformation) from primary education to higher and tertiary education. According to Mhlanga et.al. "The lockdown motivated the creation of virtual learning, the use of zero-rated applications and educational websites, launching of STEM lockdown digital school, and, finally, the sector generally switched to remote learning (online learning). This suggests that, during the lockdown, various 4IR tools were unleashed for primary education to higher and tertiary education where educational activities switched to remote learning (online learning)."

The pandemic served as a wake-up call for South Africa to expand digital access, and to reduce the cost of data. The impact of limited school days for school-going children is most evident among the poor, and will serve to further increase the gap between the haves and the have nots in South Africa.

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Case of Sweden

Iuliia Selivanova

1. Introduction

Sweden is a Northern European country located on the Scandinavian Peninsula. Sweden is a constitutional monarchy, a parliamentary democracy, and a unitary state. It's a part of the European Union but not a member of NATO nor the Eurozone. Although Sweden is a monarchy, the power of the King is limited to a ceremonial role. The supreme executive authority is vested to the Government with the Prime Minister as a head (Sweden Sverige, 2020). The legislative power belongs to the Riksdag elected by the people for the four-year term. There are two major blocs in the parliament – left-wing Red-Greens and central-right Alliance with the majority of seats represented by the Social Democratic Party (Sveriges Riksdag, n.d.).

The majority of Sweden's population which numbers 10.3 million, lives in the cities (87%) and mainly in the southern part of the country. The population is unevenly distributed with a vast almost inhabited Norrland (density < 5 people per square kilometer) and relatively densely populated urban areas in the south (1437 persons per square kilometer) (Larson, 2021). One-quarter of the population has a foreign background. Over recent decades the immigration has been mostly due to refugee migration. The average age is slightly higher 41 years that is resulted from a large number of elderly people (20%) and high life expectancy (83.3 years) (Worldometer, 2020). According to the survey polls, up to 73% of population identified themselves as atheists or non-religious people. Sweden is also thought to head a list of the most atheistic countries (Staunfenberg, 2016). However, the official data claims that 67% of the population belongs to Christianity (mainly the Church of Sweden).

Sweden is considered to be on the top of the metrics of quality of life, protection of civil liberties, human development. GDP per capita is 64628$ (PPP) giving Sweden the 16th position in the list of countries according to the World Bank. Sweden follows the Nordic Model (together with Norway, Finland, Denmark, and Iceland) – the concept of economic and social policies as a combination of free-market capitalism and social benefits including free education and healthcare, and high pension payments (The Economist, 2013). Total tax burdens are very high but a large amount of taxpayer's money goes to education and the healthcare system (27%) (Economifakta, 2020).

The commitment to digitalization in Sweden is started earlier than in other European countries with an expansion of high-speed fiber-optic network (OECD, 2018). Currently, almost all households have access to 3G and 4G. 68% of people have access to high-speed internet (100 mb/s) but those who live in the countryside still need it (A Broadband Strategy, 2020). In 2016,

98% of students used the internet every day. In 2020, due to the COVID-19 pandemic, the Government decided to spread broadband expansion in the rural areas (Bergdahl, N. and Nouri, 2020). As the main objective of the Swedish educational system is to give equal access to all students, in the first months they failed because some schools were prepared better than others (Per Andersson and Lars-Gunnar Mattsson, 2020).

2. Education system in Sweden

The Swedish educational system is thought to be one of the best in the world due to its accessibility, high quality, and individual and child-centered approach (Kools, 2015) However, current challenges comprise an increase of equivalence of schools, more trained teachers, full access to education of all students taking into account their needs (Smart City Sweden, n.d.). In Sweden the education system is decentralized. The federal government implements the framework and sets objectives and curricula for all levels. Municipalities are responsible for organizing most of the education but universities and colleges are administered by the state. There are five government authorities: the Swedish Schools Inspectorate (examines the quality of schools), the National Agency for Education (provides information and administers funding), The National Agency for Special Needs Education and Schools (which provides people with disabilities with the same education as for others), The Swedish National Agency for Higher Vocational Education (analyses labor market demands, decides what programs are to be included in higher vocational education), The Sami School Board (provides Sami schools) (EACEA, 2020).

The compulsory school includes nine classes (elementary, middle, and junior high) but most of the students continue to study at the senior higher school that takes three years. Mandatory school is preceded by early childhood education that comprises pre-school and kindergarten. Although the language of education ıы Swedish, there's an increasing number of programs taught in English. Moreover, there are some schools in the north of Sweden that are conducted in the Sami language. Students have 3 mandatory national subject exams in years 3, 6, and 9. The new grading system with 6 grades from A to F starting in year 6 was introduced in 2011 replacing the 4-grades system (EACEA, 2020).

Higher education was reformed 3 times in 1977, 1993, and 2007 that resulted in a broader distribution of higher education, increased autonomy at an institutional level, individual curricula, the introduction of three phases as part of the Bologna process (Nuffic, 2018).

One major characteristic of the Swedish educational system is adult education that was created mainly to reduce educational inequality between foreign- and native-born adults. Each adult has the right to access the counterpart of the compulsory school. It's also a part of a lifelong learning strategy (EACEA, 2020).

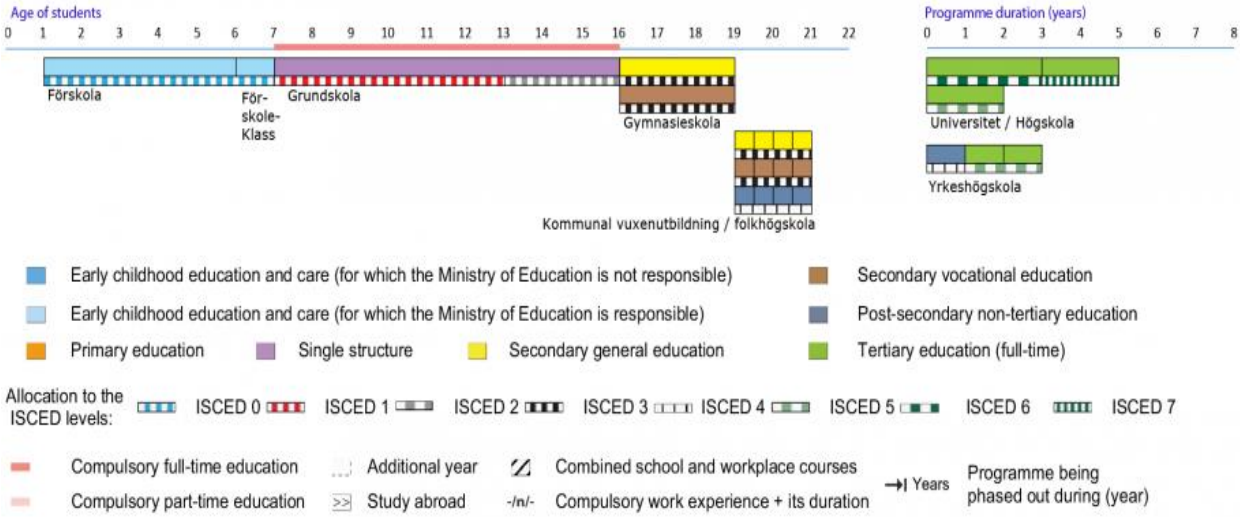

Fig.1 Stages of the Swedish Education System (Eurydice 2016)

3. Policy measures

Compared to most of the countries Sweden chose another path with the outbreak of the COVID-19 pandemic. The strategy has been based on voluntary social distancing, conscientious, recommendations, and few restrictions (Savage, 2020). The major objective was to flatten the curve and not to overload the health system. The introduction of lockdown was considered as a violation of freedom of movement (DN Debatt, 2020). This relaxed approach was also applied to education. While more than 90% of students around the world (UNESCO, 2020) were out of school in March 2020, Swedish students kept going to school. Despite Sweden banned the gathering of 50 or more people it didn't apply to education. However, on March, 23 the Swedish government canceled national tests. The decision to close schools concerned only upper secondary schools (from March to mid-August and from December until January 24, 2021 (Radio Sweden, 2020). Primary schools got the freedom to decide and often even individual teachers could find a solution. Anyway, in case of illness student is recommended to stay at home having its own responsibility. Notably, some parents were disagreeing with the authorities and didn't let their children go to school (Multinclude, 2020). Universities and colleges were closed on March 17 and transited to distance but reopened in August (Ludvigsson, 2020). The restrictions have been tightened recently with the increase of positive cases during the second wave. Some of the institutions have gone into partial lockdown (Connolly, 2020).

A recent publication showed that primary school teachers and preschool teachers do not have a higher risk to get an infection than other occupational groups (Sweden report, 2020). In fact, taxi and bus drivers appeared to be overexposed to infection risk (The Local, 2020 a).

Children are considered to get milder symptoms than adults and they transmit virus less than adolescents. It was found that less than 5% of overall COVID cases in the EU and the UK are among children (2.7% in Sweden) (ECDC, 2020). Another study compared the effect of measures in Finland and Sweden (Covid-19 in schoolchildren, 2020). They demonstrated that there is no significant impact of school closure on the number of confirmed cases among children. There is more concern about the negative impact of school closure on mental and physical health and academic performance. During lockdown children can experience more anxiety, behavioral problems, conflicts at home, and in dysfunctional families even violence (Multinclude, 2020). Hence the government wanted schools to remain open as much as possible. Another problem in the case of distance studying is that children need their relatives to stay at home with them. This role is usually given to grandparents, the most vulnerable group (The Local, 2020 b).

Prior to the COVID-19 outbreak, Sweden had an experience of remote and hybrid forms of teaching due to the lack of teachers in rural areas as well as the disabilities of some students. Taking into account that students can share the laptop with others in their family or have a bad internet connection, schools suggest the solution to study in the local library with internet or send printed learning materials via post. The shift to digitalization was challenging not only for children but also for teachers. According to the poll, only half of the respondents had high access to digital teaching whereas one-third has never experienced online teaching areas (Bergdahl, N. and Nouri, 2020).

4. Pandemic as an opportunity for developing the educational system in Sweden

The pandemic forced the education system to transit to distance learning all over the world. Even Sweden with its relaxed approach applied online learning to upper secondary schools and universities. There are several advantages of distance education. Students dot need to spend time on travel. This is of particular relevance for those living in the countryside and international students who can stay in the native country. Moreover, online lessons are more affordable because they let students save money on transportation, meals, and paperless study materials. The latter also is beneficial for the environment (Gautam, 2020). It was noted that students with a long-term illness can gain an advantage in the case of introducing on-line learning being socially included. On the other hand, students with disabilities are constrained the most lacking special support (Inclusive distance learning, 2020). Notably, Swedish teachers pointed out that recorded lessons are helpful for those who need to repeat the same materials or to control the pace. Another positive thing is an easier sharing of video resources (Bergdahl, N. and Nouri, 2020). Anyway, nothing can entirely replace live communication.

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Case of the USA

Mansoureh Gholami

1. Introduction

The United States of America is located in the center of North America and is the third or fourth-largest country in the world. The population of this country is approximately 328 million and is counted as the third populated country in the world. The country consists of 50 states and the capital is Washington. D.C..(Smeeding, 2005)

1.1 Digitalization in the US

Over the past century, numerous key technologies (including digital technologies) have been employed in the education system in the United States. For the most part, each of them has been expected to be effective in teaching and learning. Although it is now obvious that it has not led to any kind of major reorientations and changes in education, it is worth noting that digitalization has made several key improvements, and advancements in educational access and equity have resulted during the last 100 years (Online, Howard, & Mozejko, 2015).

In the United States, most schools had access to the Internet in some form by the end of the 1990s. The main forms of online services were text-based, such as forum postings, online chatting, and email. In the early 2000, the internet became dynamic. It means that individuals could make connections online and online content could be transmitted. Key aspects of this change were the capacity to search using natural language and the capacity for prediction of words (e.g. Google Search), editing online content became available to everyone (e.g. wiki sites, product reviewing), and increased social interaction (e.g. discussion boards, online groups). Investment in one-to-one device programs, computer labs, high-speed internet connections resulted in high employment of tech devices in the classroom, but it can be named a revolution in education, teaching, or learning. Tamim et al.(Tamim, Bernard, Borokhovski, Abrami, & Schmid, 2011) analyzed integration across all grade levels and higher education through a wide range of technologies and identified a 12% increase in learning when using technology. However, results showed that gain was only not from technology use; they were more likely from other teachings, learning, and school factors. These were adopted more quickly in the United States, as they were often aligned to US learning outcomes. Productivity tools such as image editing, word processing, and presentation programs, which were designed for business uses, were more difficult to align to explicit outcomes.

2. An overview of the U.S. Department of Education

The U.S. Department of Education is the federal agency that sets policies on supervises and manages most federal education support. It helps the president to pursue his education plans for the country and enforce Congress-enacted legislation.

The goal of the Office is to represent the students of the United States, facilitating student success and readiness for global competition by promoting educational excellence and en suring fair access.

In 2007-08, the Agency served nearly 55 million students in elementary and high school systems (pre- through grade 12) attending about 100,000 public schools and 34,000 private scho ols. Approximately 10 million undergraduate students were also supported with grants, loans, and work-study assistance through department programs. ("National Center for Education Statistics (NCES) Home Page, part of the U.S. Department of Education," n.d.)

The office remained relatively small over the years, working under various names and housed in different departments, including the U.S. Interior Department and the former U.S. Department of Education and Welfare for Health (now Health and Human Services).

3. Schools in the US

There are two kinds of schools in the United States, public or private schools. Public (free) education is typically from kindergarten to grade 12 (frequently abbreviated K–12). Pre-School (also called Pre-K or PK or Pre-Kindergarten) refers to the first formal academic classroom-based learning environment that a child customarily attends in the United States. It begins around the age of three to prepare for the more didactic and academically intensive kindergarten, the traditional "first" class that schoolchildren participate in. After this step, U.S. children enter formal schooling around age 5 and it will continue for 7 grades at the age of 12.

After elementary school, students proceed to junior high school (also called middle school), where they usually move from class to class each period, with a new teacher and a new mixture of students in every class. Students can select from a wide range of academic classes and elective classes. This step of secondary education will take 5 years and will get end at the age of 18.

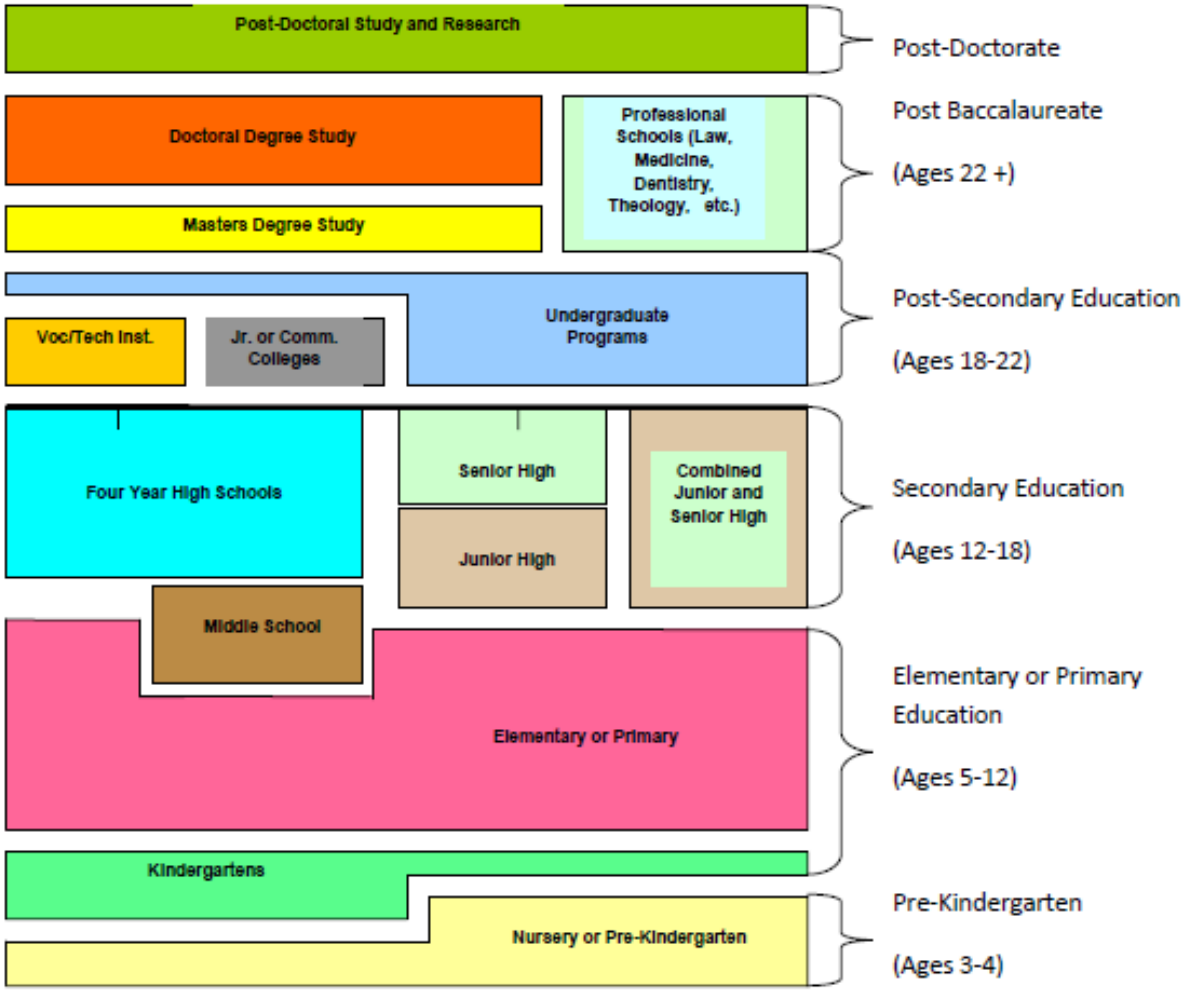

Figure 1: Education Structure in the United States

4. The impact of remote schooling on kids

Nearly all U.S. schools have closed due to the coronavirus pandemic from the spring semester of 2019-2020, and about 55 million elementary and secondary school students are blocked from entering schools. The first cases were found in late January in the US. On January 29th there were only 5 confirmed in the US that some schools started to encourage remote schooling. But, the beginning of the closure has been in late February, while about 48 states, four U.S. territories, the District of Columbia, and the Department of Defense Education Activity suggested school building closures for the rest of their academic year. On the 11th of February, the American Federation of Teachers suggested more federal guidance for schools on how to handle the coronavirus. On the 27th of February, the scare of covid 19 made schools shut down totally. On the 5th of March, a huge move toward distance learning starts. In mid of April, some essential services at schools kept going. On the first of May, some schools announced that students

will not come back to school for the summer and fall semesters. By 31st of July schools in nearly all the states completely shifted to remote settings and no longer new updates have been released in 2020.

During this pandemic, the government launched some sources for informing citizens and schools such as:

- A map of school closures in each state
- School closure information by state
- School closure information in America's largest 25 cities by population
- A timeline of all statewide school closure orders
- General resources for citizens

For sure, the pandemic has been impacting students during last months, some reported issues based on EPI released reports on the 20th of September(Qualls et al., 2017) are:

1. children who were hardest affected by school closures and limitations have regres sed in so many basic skills and learning.

2. Some kids have lost their physical health, mental illnesses and eating disorders are rising every day.

3. Increasing concerns due to the less social reference care of children also became a serious source of concern since it shows that domestic neglect, harassment, or abuse is undetected.

4.1 The impact of remote learning on higher levels

However, Institutions of higher-level learning are facing some different issues during this Covid pandemic. Most of the problems are related to lack of financial resources mostly due to lack of international students who usually pay the full tuition fee. On the other hand, students prefer to defer their studies to after the pandemic. Universities are also under pressure of losing dining and housing incomes and spending a large part of their budget on cleaning and safety measures. In the early months of the outbreak, almost all universities announced remote instructions but as the pandemic shows no healing during the next semesters, universities considered classes as partly remotely and partly in campus classes. Meanwhile, due to the lack of budget and students, many small universities started to lay off their employees. In March 2020, Congress has made a decision based on financial aids to universities, a budget as large as 14 billion dollars. Some reports from the universities and colleges warned about some issues such as the digital opportunity gap between students, a record level of depression and anxiety in students, and the educational fallout of the pandemic.

5. Pandemic as an opportunity for developing the educational system in the US

The Covid-19 pandemic was also effective in some aspects for ameliorating the education system in the US by giving this opportunity to see the results of some strategies and actions during last year and it is also made the system to be prepared for future shocks. An article released by the economic policy institute of the US mentioned the main step that the US education system should take regarding education initiatives and comprehensive programs to boost the access of deprived children to tech devices and reduce inequalities. Most of the universities have shown interest in rethinking the education system and teaching methods. Harvard University's newspaper has brought up the fact that this pandemic has shown to the young generation the importance of science to human health and daily life.

The article mentions three steps for ameliorating the impacts of pandemic based on today-relief, rehabilitation, and reconstruction:

- To provide facilities for remote learning and continuous support as long as the pandemic goes.
- To make sure that schools and students are assisted to compensate for time and sources they lost due to the pandemic.
- To recognize and rebuild the gaps and make sure the equality gives enough space to all talents from various regions, although this step needs money and good cooperation to be involved from all the states ("COVID-19 and student performance, equity, and U.S. education policy: Lessons from pre-pandemic research to inform relief, recovery, and rebuilding | Economic Policy Institute," n.d.).

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Conclusion

The COVID-19 crisis became a tremendous threat to education-related outcomes on many fronts (World Bank, 2020). Education appeared to be one of the central areas that experienced the impact of coronavirus - the closures of educational institutions due to the outbreak of the COVID-19 lead to an unprecedented influence (Kapasia et al., 2020).

Being one the key elements within the SDGs agenda, which forms an overarching international political vision related to sustainability (Gaffney, 2014), education sector world-wide was in transition from traditional teaching-learning to remote education process. Fighting against global pandemic governments enacted new policies and adopted radical measures to protect national educational systems. Coronavirus emerged unexpectedly with little or no preparation plan in place, especially in developing countries (Oyedotun, 2020).

Governments across the world attempted to search a solution in extensive digitalization, conducting a shift to online education. During the lockdown, teachers were instructed to teach using online learning platforms (Kapasia et al., 2020). Both stuff and students had opportunity to explore a variety of learning options thanks to technologies and other tools. Moreover, the practice of blended learning was distributed rapidly in universities and schools worldwide, while the remote mode of working became a new norm, replacing traditional university and school classroom (Oyedotun, 2020).

Due to considerable differences across countries and continents we assumed diversity in approaches which governments undertook to deal with pandemic in the field of education and, thus, differences in results. Whether pandemic can be perceived as opportunity or it is just a dangerous threat to the national education system that the governments faced?

This report provided a short overview of seven countries, describing how authorities at the national level faced the challenge of pandemic, undertaking measures in the area of education. Moreover, implementation of different policies and decisions produced various outcomes, which were also shortly illustrated in each country-case, thereby allowing us to come up with a general conclusion and share reflections through the prism of possible advantages the pandemic brought for developing education sector.

The case of Egypt showed mixed results. Having the largest education system in the Middle East and North Africa, the central government used all available resources to tackle the COVID-19 crisis as fast as possible. Highly-centralized education system was transitioned first to online mode and then to the hybrid teaching-learning process. The pandemic inspired innovation within the system to promote finding and delivering solutions that guarantee the quality education to those most affected. Therefore, the process towards extensive digitalization took place not only in

education, but in other governmental services. Although, there are still some observing big problems, e.g., the wealth gap and gender disparity, we tend to think that, in essence, Egypt dealt with the Covid-19 pandemic quite well. In particular, national government took procedures and adopted plans that would pave the way to face the second wave of the pandemic and serves Egypt's plan to achieve better quality of education.

Croatia showed ambivalent results in the sphere of digitalization. Nevertheless, citizens, encountering new circumstances, recognized the importance of digital technologies at all levels of society, notably in education. The pandemic had a significant impact on the Croatian education system by accelerating the ongoing digitalization of schools. The project had been launched by the Ministry of Science and Education several years before the coronavirus outbreak. Those predispositions simplified the transition of learning to digital channels during the closure of educational institutions. Still, distance learning was the most challenging novelty for a country. Although, remote studying process cannot substitute the standard classroom interaction, it brought particular advantages. In particular, the use of digital tools that caused scepticism and lack of familiarity of stuff before the pandemic turned to be a necessary skill that enables lecturers to engage students and continue education process in a modern way, that possibly changed teachers' initial attitude.

Germany, in compare with Egypt, repreents the example of a country where federal government plays a minor role in education, providing great responsibility to individual German states. This specific causes difficulties in gathering statistics about the influence of pandemic on education. Nevertheless, there are still ongoing debates about whether the corona crisis will provide a boost to digitization in the long-term perspective or online mode is rather a short-term solution for Germany. Despite de-centralized education system, federal government together with ministers of education had built a strong cooperation. Infrastructure was recognized the main problem which the country had faced. Eventually, hard software equipment became a core element in the agenda for reinforcing education sector in addition to investment in a nationwide education platform and digital competence center for training teachers in handling digital teaching material.

In case of South Africa, the pandemic brought issues which already existed in national system of education into a sharp focus. Students who live in poor areas experienced serious problems with access to online facilities. Considering that large percentage of South Africa's school-age population live in rural areas without access to the Internet, inequity and inequality became the most complex issues the government had to deal with. Ultimately, the pandemic served as a wake-up call for South Africa integrating changes for primary, secondary and tertiary education. In particular, there was raised a big question about expanding digital access and reducing the cost of data for teaching-learning process.

In Japan, the plan to digitalize education had already been started before the pandemic, but in practice it was far from realization. Facing school closure, the plan “one computer per student” was moved ahead and every student in the primary and secondary education is now supposed to possess their own computers for learning by March 2021. As for the tertiary education, most universities managed somehow to adapt themselves to the digitalization of education rapidly. In this way, the pandemic of COVID-19 did alert the education entities in Japan to quickly accomplish the digitalization which had been planned but not entirely implemented back that time.

Sweden's approach was based on general recommendations and several restrictions and demonstrated how authorities rely on common sense of the population keeping the distance and staying at home while being sick. Every person was supposed to accept responsibility for his/her own health and life. Lately, this strategy was considered to have failed though - the main mistake was done in relation to care houses and their staff. As for education sector, the government kept the same strategy remaining schools open as much as possible while this country was highly digitalized and could ensure the transition to the distance learning. Authorities expressed more concerns about the negative consequences of school closure for mental and physical health as well as academic performance. Although Swedish strategy was not perfect and showed its deficiencies, there were revealed some positive aspects of the approach the government applied.

The US has been taking considerable steps towards digitalization over the past century. Numerous key technologies have been employed in the national education system, being expected to be effective in teaching and learning. Although, this digital integration did not cause major reorientations in education, it helped to obtain certain advancements in terms of accessibility and equity. Nevertheless, the country experienced serious issues due to the impact of coronavirus, such as lack of financial resources and digital opportunity gap. Therefore, mental problems and regression in students’ performance and learning raised numerous concerns of experts. Despite that, the consequences of pandemic also yielded some benefits, sparking interest to reconsider the teaching methods and recognizing more thoroughly the gaps related to inequality.

Overall, considerable challenges produced by coronavirus have increased collective resilience and creativity at the global and national level (Nguyen et al., 2020). The pandemic and its consequences enabled to shed light on the existing wicked problems in education and other sectors and put the whole organization and governance of public services into the loop. And although there remain many significant issues related to the harmful influence of coronavirus, pandemic boosted enormous collective strength and ability to cooperate and collaborate in fighting the global threat. Unexpected circumstances transformed the whole world population into new learners, giving no choice but to adapt to the new conditions of living and obtain new skills and motivation to keep moving forward – more resilient, experienced and strong.

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Personal experiences

Abdelmagid Basyouny Sakr (Egypt)
PhD program in Literary and Philological Cultures
Cycle 35

As a PhD student at the University of Bologna during the pandemic, the situation affected me in many aspects. First, it took me off guard and, suddenly, I had to transform all my academic life online. I had to learn to use platforms like Teams and Zoom. My research got a bit slow, as I had to keep going with the resources I find online. I got lazy sometimes during the lockdowns, but also, I tried not to fall into that and get back on track. I have to say also that the university of Bologna dealt with the situation firmly and action have been taken to facilitate things for us, for example, libraries put many resources to be accessible online and we used to get instructions via email on what to do and what not to do on a regular basis. That helped not to feel disconnected from the academic life.

Dora Tot (Croatia)
PhD program in Global Histories, Cultures and Politics
Cycle 35

When the pandemic started, I was only for several months at the University of Bologna as a 1st year PhD student in Global Histories, Cultures and Politics. Like all other students of the University, it enabled me to attend lectures in person. The communication with my supervisor and colleagues became exclusively virtual, lacking in-person interaction. Working from home, I have encountered difficulties such as periodically experiencing lack of focus and motivation.

Concerning research activities, the pandemic significantly affected my ongoing project. It prevented me from travelling abroad and conducting archival work at foreign archives, overall postponing scheduled activities and some aspects of my research. Moreover, some academic events were switched online or even cancelled. Even though the organisers did excellent work setting up virtual conferences, notable was the missing of social interaction with fellow researchers, particularly during coffee breaks, which reduced the possibility of networking. With the restrictions on travels, my international exchange at a foreign institution postponed to an undefined time.

Despite all the negativities, during the COVID-19 pandemic and smart-working, I recognised certain positive aspects. The most significant is the ability to attend lectures online without depending on physical attendance. For instance, while on a business trip, I could follow lessons at the University. Another example of such flexibility proved when organising an online seminar together with a fellow PhD student. Thanks to the fact that online academic events recently became a common occurrence, we are now able to get together speakers from different countries, which would otherwise be difficult to gather in Bologna.

Igor Bröckel (Germany)
PhD program in Physics
Cycle 34

I have experienced the effects of the pandemic as both positive and negative. On the one hand, I am more on my own because I interact less with my supervisor. In addition, travel and direct exchange with other scientists is difficult. For example, a stay abroad in the states that I planned could not be carried out due to the restrictions.

But the situation was also used positively. Due to the increased use of Skype, Zoom and Teams, I was in close contact with colleagues abroad. For example, I was able to take part in conferences and give lectures in other countries, which would not have been possible without the extensive use of these new technologies.

Masayo Watanabe (Japan)
PhD program in Philosophy, Science, Cognition, and Semiotics (PSCS)
Cycle 35

In the second half of January 2020, for my research I was in Istanbul, where I heard people talk about the COVID-19 and felt it was no longer just a matter of mild concern. While Italy was rapidly covered with the tense atmosphere in March, I chose to stay in Bologna. My PhD work itself was not largely affected by the lockdown because I could make my work proceed in the residence. It does not mean, however, that I did not feel anxious about the change caused by the pandemic. Online meetings are indeed convenient to keep in touch and sometimes seem to be enough, but I have felt that something crucial is lacking. I hope every student can enjoy the merits of the digitalization and its demerits will be reduced by humanity.

Gerhard Kirsten (South Africa)

PhD program in Mathematics
Cycle 34

The Covid-19 pandemic in combination with a PhD in a foreign country has been a rollercoaster ride in 2020, to say the least. On the one hand it became evident that worldwide collaborations can be effortlessly continued without the direct and indirect costs associated with travel. On the other hand, the lack of networking has paid its dues, especially with the end of the PhD drawing nearer and the importance of networking is ineffable for what lies in the future. Nevertheless, I am still confident that I am on track for completing my PhD in time, despite the disruption of a year that 2020 has been.

Iuliia Selivanova (Russia)
PhD Program in Future Earth, Climate Change and Societal Challenge
Cycle 35

Frankly, I'm not interested in this topic. I'm burnt out and tired of the COVID news and conversation 24/7. My experience in distance learning includes the last week of the semester and many online seminars. It was difficult to concentrate on the presentation being on the other side of the computer instead of attending in person. Furthermore, I didn't yet meet most of my colleagues I lacked communication with my supervisor. Even when we were able to work from the office, she wasn't commuting, choosing to work on distance. In my opinion, we miss human interaction, the opportunity to meet colleagues, get acquainted with professors and great scientists. We miss the emotional part and eye contact. Online meetings are difficult not only for listeners but for speakers. The presenter or teacher gives the energy to the audience but doesn't get it back and doesn't receive proper feedback. I hope the pandemic will not transit education and science entirely to online.

Mansoureh Gholami (Iran)
PhD program in Health, Safety and Green Systems
Cycle 34

My think-piece on Covid-19 and the pandemic would be more concentrated on the positive side. Although the world has gone under huge negative wives, I believe the world's education systems have taken expand advantage of the pandemic that is revealing as we are moving forward. Progressive remote learning is one of these unneglectable results. Personally, I am more optimistic now about the future of human cooperation, as we witnessed it for reaching a safe world. Pandemic taught me the value of hope, love, health, and last but not least, tech!

Olga Trunova (Russia)
PhD program in Management
Cycle 34

Personally for me experiencing the pandemic was challenging, however I would perceive the changes it brought as lessons. One of the key lessons is about flexibility, i.e., adapting to the changing environment through learning new ways and practices for living and working, being flexible enough to find your own approach to accept the rapid transformations, in particular, those, which are related to online mode. Another lesson is about appreciation. The 'quarantine life' made me reconsider somehow my worldview and, therefore, value better simple things which I took for granted earlier, including 'real' attendance of seminars and other events, freedom of travelling and social communication. The consequences of coronavirus remain, and from time to time I find myself still adapting to this new specific lifestyle. Nevertheless, I began to think that this extraordinary period of time has brought not only difficulties, but also non-trivial opportunities that allow us to live and keep moving towards our personal and professional goals.