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Emergency Remote Education and Smart Working at Three European Higher Education Institutions

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ABSTRACT

Due to the threat posed by COVID-19, many colleges and universities around the world opted to switch to online courses and smart working to keep their students, professors, and staff safe during the pandemic emergency. Face-to-face classes, including labs and workshops, have been canceled and substituted with online activities. New administrative procedures have also been established to support the emergency remote education. This article analyzes these changes in light of the experiences of three higher education institutions in different countries, namely Latvia, Poland, and Italy. From this analysis, some aspects have emerged that have stimulated a deeper reflection on the use of digital technology in higher education.

KEYWORDS

Coronavirus Pandemic, COVID-19 Outbreak, Distance Learning, E-Learning, Emergency Remote Learning, Higher Education Institutions, Online Courses, Smart Working

1. INTRODUCTION

We are entering a kind of *Digicene* (ETF Partners, 2016): digital technology is expanding into all aspects of human life.

The ongoing fourth industrial revolution (Schwab, 2017) is boosting living standards and providing new development opportunities in all productive sectors and areas of society, including that of education.

The consequences are particularly visible in private and business communication and information sharing processes.

Experts agree that the speed at which digital technologies are spreading nowadays is impressive, and technological advances will produce remarkable and unprecedented changes in the medium-term (Elliott, 2019; Harris, Kimson & Schwedel, 2018; Qian, Zhong & Du, 2017; Sousa, Cruz, Rocha & Sousa, 2019).

It has been broadly argued that, in the near future, the demand for skilled labor will grow whilst that for the performance of routine activities will decrease (Frey & Osborne, 2017). In this regard, investments in education have been called for to re-skill workers and support continuous learning in order to preserve people's employability in the jobs market of the future (Larsson & Teigland, 2020).

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To sustain the educational endeavor, digital technology is deemed to be increasingly essential, since it can make educational interventions widely accessible at low-cost. It allows the creation of personalized learning paths, accessibility by a large attendance of learners, and hugely reduced costs for teaching-learning activities (Anderson, 2008; Dumford & Miller, 2018).

Recently, the lockdown introduced worldwide in an effort to restrict the spread of the COVID-19 pandemic forced the extensive recourse to virtual communications online teaching-learning, and remote working.

However, the use of these means took place suddenly, without adequate planning, experimentation, and user training. The solutions have often been extemporized, especially in schools and universities, the closure of which has forced students, teachers, and administrative staff to operate from home using their own digital devices.

In many cases, the already existing e-learning platforms have been improved with software tools allowing data sharing, collaborative working, and video conferencing. These tools have often been made available for free by some of the world's largest and most successful companies in the field of Information and Communication Technologies (ICT), such as Google, Microsoft, Amazon, and Zoom.

During the lockdown, then, higher education institutions largely continued their activities through digital communication and collaboration platforms, but they encountered many unexpected problems. Indeed, the vast majority of online teaching-learning experiences should more appropriately be referred to as *emergency remote teaching* (ERT) experiences (Hodges, Moore, Lockee, Trust, & Bond, 2020; Lederman, 2020; Milman, 2020).

Indeed, distance education based on well-planned online courses completely differs from ERT.

According to Bozkurt and Sharma, distance education is an interdisciplinary field that focuses on open educational practices:

By definition, distance education is characterized by the distance in time and/or space between learners and learning resources. While remote education refers to spatial distance, distance education considers distance within the perspective of different angles and strives to explain it through transactional distance. Distance education further places emphasis on interactions between different parties and through different channels to let learners be more engaged in the learning process (Bozkurt & Sharma, 2020, p. ii).

Although the organization of remote classes and virtual exams, as well as of the various bureaucratic activities proved very challenging, ERT has been a unique and significant experience. It is reported that more than 1.5 billion learners of all ages from around the globe were affected by school and university closures (UNESCO, 2020; UNICEF, 2020).

Furthermore, higher education institutions also experienced remote administrative activities. The COVID-19 impacted on daily work (Mancl & Fraser, 2020). Within organizations and media, terms such as *Smart Working*, *Agile Working*, *Modern and Flexible Working*, or *Dynamic Working* increased their popularity during the pandemic.

Smart working emerged as an overused term, especially in Italy (Biasi, 2020; Signorelli, Scognamiglio & Odone, 2020; Moretti, Menna, Aulicino, Paoletta & Iolascon, 2020), to address working from home.

Smart working, meanwhile, is a consolidated term used to address:

[…] a business-focused approach to flexible working that delivers more efficiency and effectiveness in work organisation, service delivery and organisational agility, as well as benefits for working people (Lake, 2015, p. 3).

The key principles of smart working are (El-Gamry & Heselwood, 2018; Gillen, 2019):

- It takes place at the most effective locations and at the most effective times, respecting the needs of the task, the customer, the individual, and the team.
- Everyone is assumed to be capable of smart working without assumptions being made about people or roles.
- It should balance the employees' freedom to choose with their responsibility to meet the needs of the business.

During the COVID-19 lockdown, both remote learning and smart working have been experimented to a massive and unprecedented degree.

Worldwide, most people involved in remote learning and smart working evaluated their experience positively (Favale, Soro, Trevisan, Drago, & Mellia, 2020; Händel, Bedenlier, Gläser-Zikuda, Kammerl, Kopp, & Ziegler, 2020; Gallego et al., 2020; Gonzalez et al., 2020; Soni & ud din Mir, 2020; Wu, 2020).

Surveys reveal, for example, that employees working remotely see more positive effects on their daily work, are more engaged, and have a stronger sense of well-being than those in non-remote jobs with little flexibility (Angelici & Profeta, 2020; Ceinar & Mariotti, 2020; Emmett, Schrah, Schrimper, & Wood, 2020; Pouliakas, 2020; Sarkis, Cohen, Dewick, & Schröder, 2020).

However, ERT in Europe impacted differently on higher education institutions and schools. The JRC Technical report (Di Pietro, Biagi, Costa, Karpinski, & Mazza, 2020) conducted in a few selected EU countries shows that students of primary and secondary schools suffered a learning loss, although this was not felt equally. Overall what is clear, though, is that ERT negatively influenced the acquisition both of cognitive and non-cognitive skills.

This article aims to reflect on the impact of ERT in teaching-learning management at three higher education institutions in three European countries (Latvia, Poland, and Italy), highlighting some aspects that emerged from their experiences.

2. OBJECTIVES AND METHODOLOGY

The primary research objective was to explore the effects, both positive and negative, of the experience of ERT at higher education institutions that was implemented due to the lockdown imposed by the governments of various European Union countries in an attempt to minimize the severity of the COVID-19 coronavirus pandemic emergency.

The secondary objective was to gather testimonies regarding the impact that the imposition of smart working had on higher education teaching and administrative staff.

A case study research has been conducted involving three higher education institutions, one in each of three different European countries, Latvia, Poland, and Italy. The intention was not to perform a comparative analysis, but only to find some significant elements in common that might characterize their experience.

The purpose was to contribute answers to the following questions:

1. What were the factors that influenced the overall satisfaction/dissatisfaction with the ERT experience?
2. Did the ERT experience influence the opinion of teaching staff and students regarding digital learning?

For this research, the case study methodology has been adopted. It is a methodology commonly employed in social sciences to investigate a phenomenon in a real-life context (Atchan, Davis, & Foureur, 2016). According to Yin (2003), a case study research is particularly useful when the

boundaries between the phenomenon and its context are not immediately apparent. As such, different methods can be combined to illuminate a case from different angles (Johansson, 2007).

Case studies are often used in exploratory research. They can help to discover aspects that might then be further investigated through other methods. A case study research can be considered a prelude of subsequent analysis since it allows a researcher to evidence the various facets of a more complex phenomenon and stimulate reflections that can be transformed into a structured research hypothesis.

In carrying out this research, a three-step methodology has been adopted:

1. Case study design – definition of objectives.
2. Data collection – gathering of data and opinions.
3. Analysis – reflection and discussion.

Research has been carried out through interviews that included academic teachers (Latvian case study), academic teachers and students (Polish case study), and academic teachers and administrative staff (Italian case study).

Documents produced by the three universities issued in relation to the emergency have been also collected and analyzed. These documents included official administrative papers, institutional communications, official website content, staff emails, social network posts, and other relevant documents.

Interviews were conducted by telephone or via video/voice chat tools:

- In Latvia, 13 academic teachers were interviewed by telephone and email.
- In Poland, 20 academic teachers and 20 students were interviewed by telephone.
- In Italy, 8 academic teachers and 12 administrative staff were interviewed through virtual conversations.

The academic teachers and administrative staff interviewed were key persons involved in the functioning of their university educational system.

They were selected considering their full participation in the ERT courses as well as in the bachelor's, master's, and state's exams.

3. THE THREE CASE STUDIES

The three higher education institutions involved in this research are:

- One of the fastest-growing public universities in Latvia. According to U-Multirank 2020[1]. It has the second-highest ranking ('A' scores) among 20 higher education institutions in Latvia. It has a very strong international orientation, and scores highly in research.
- The largest private university in Poland, and one of the most accredited. According to the Polish Ministry of Science and Higher Education, it holds the third top-ranking position amongst the non-public higher educational institutions in the country.
- A medium-sized state Italian university, with approximately 17,000 enrolled students. For the purposes of this case study, we considered the situation on a three-year degree course that involved about 150 students, which is included within a large faculty.

The three cases have been developed independently to collect different experiences useful to build a multifaceted picture of how higher education institutions tackled the lockdown.

An exploratory research has been considered the premise of a more articulated comparative analysis on the implementation of professional remote teaching activities.

In this perspective, three higher education institutions with diverse characteristics have been chosen, considering their availability to collaborate in a further research.

In the next paragraphs, the three case studies are illustrated. The main elements of the governmental acts established to fight the COVID-19 pandemic are synthesized at the beginning of each paragraph.

3.1 The Latvian Case

The COVID-19 pandemic reached Latvia at the end of February 2020, with the first case of infection being diagnosed on Saturday, February 29 (Baltic News Network, 2020).

Latvia officially entered lockdown on March 12, and this state of emergency continued until June 9.

On March 13, the government closed all educational institutions and banned mass gatherings. On June 9, the Cabinet of Ministers issued Regulation No. 360, entitled "Epidemiological safety measures to limit the spread of Covid-19 infection", in order to limit the spread of Covid-19 infection. Following this Regulation, it was established that, until July 31, higher education institutions could not hold any study process in person, and that all didactic activities had to be provided remotely.

During this period, however, certain activities were allowed to be performed in person if it was not possible to do so remotely, these being:

- consultations to prepare students for state examinations, including professional examinations;
- sitting of state examinations, including professional examinations;
- completion of practical elements of professional higher education programs and examinations.

In accordance with governmental indications, the case study institution has observed the following restrictions:

- From June 10 to June 31, 2020, no more than 100 people indoors and no more than 300 people outdoors, providing not less than 4m per person.
- From July 1 to July 31, 2020, no more than 100 people indoors and no more than 1000 people outdoors, providing not less than 4m per person.
- From August 1 to August 31, 2020, no more than 250 people indoors and no more than 1000 people outdoors, providing at least 4m per person.

University employees were not included in the maximum numbers of people specified in the above points.

During events organized by the university, the flow of people must be controlled so as to prevent crowding at entrances, exits, toilets, and other relevant places. The organizer of an event must display the following information regarding precautionary measures in a visible place:

- a warning that a person cannot participate in the event if they have been subject to self-isolation, home quarantine or isolation, or show signs of an infectious respiratory decease;
- a warning regarding the observance of a distance of two meters and other conditions, if any;
- instructions for proper hand hygiene and respiratory hygiene (i.e. wearing of face masks).

The university suggested the Microsoft Teams platform for remote working. Employees and students can access Microsoft Teams using their university email credentials.

However, other tools for virtual communication or cloud-based video conferencing services, such as Skype, Zoom, or GoToMeeting, could also be used.

3.1.1 The ERT Experience Of The Latvian Higher Education Institution

A questionnaire, entitled "Higher education under the influence of Covid-19: problems created and possible solutions", was submitted at the beginning of June to academic teachers and students. Data analysis is still in course.

However, some responses from semi-structured interviews conducted with academic teachers and researchers (13 respondents) are available. Interviewees were asked the following key questions:

- How important do you evaluate distance learning?
- How satisfying did you find your university ERT?
- How appropriate did you find the technical support?
- How does online learning stimulate creativity?
- How does online learning improve learners' collaboration?
- Does online learning enhance communicative competence?

Table 1 shows that respondents positively evaluated the contribution of distance learning to creativity, the level of collaboration among learners, and its effect on communicative competence.

Table 1. Evaluation of aspects related to distance learning

Distance learning	Extremely	Very	Moderately	Slightly	Not at all
Stimulates creativity	5%	22%	28%	30%	15%
Improves learners' collaboration	16%	39%	24%	14%	7%
Enhances communicative competence	36%	20%	25%	14%	5%

In fact, most of them (80%) had regularly used Moodle in their educational activity. Furthermore, the university is currently involved in research on digital learning, there is a close collaboration between the faculty of *Educational sciences* and the faculty of *Engineers*, and there are foreign scientists enrolled in the core of teaching staff.

The university also participates in many international projects, most of them funded by the European Union. For this purpose, most academic teachers, researchers, and administrative staff are used to using virtual meeting and collaborative tools.

The overall evaluation of the ERT experience (Table 2) is largely affected by the relevant role that digital technologies have in the university research activity. Accordingly, despite, the small number of technicians involved, the technical support available for online learning has been highly appreciated.

Some respondents (37%) suggested the need to prepare contingency plans to deal with unexpected technical incidents and workflow bottlenecks. They argued for the recourse to risk analysis and risk management to prepare for unexpected problems and develop emergency solutions.

Many interviewees (78%) claimed that the lockdown has presented an opportunity to accelerate the use of online learning at their institution. This is a view that is widely shared:

[Coronavirus…] has created a set of unprecedented natural experiments. For the first time, entire student bodies have been compelled to take all of their classes online. So, we can examine how they perform in these courses compared to the face-to-face kind, without worrying about the bias of self-selection. It might be hard to get good data if the online instruction only lasts a few weeks. But at institutions that have moved to online-only for the rest of the semester, we should be able to measure

Table 2. Evaluation of the ERT experience (own source)

Evaluation of	Very good	Good	Fair	Poor	Very poor
Your ERT experience (in general)	25%	50%	15%	20%	-
Your university engagement	35%	40%	15%	10%	-
Your university technical support	70%	20%	-	-	-
Administrative staff availability	80%	20%	-	-	-
Administrative staff engagement	90%	10%	-	-	-

how much students learn in that medium compared to the face-to-face instruction they received earlier. (Zimmerman, 2020, https://www.chronicle.com/article/Coronavirusthe-Great/248216).

On April 30, the Latvian government, through the Latvian Council of Science, launched a state research competition, "Mitigation of Covid-19", inviting domestic scientists and experts to submit projects designed to overcome the coronavirus crisis in Latvia and to develop proposals for the future sustainability of society. Five million euros have been allocated to projects that tackle medical and social issues raised by the outbreak of COVID-19 (Corona24News, 2020). The definitive report on the results achieved within the state research program is due to be submitted to the Cabinet of Ministers by December 20, 2020.

Many projects included online education interventions and smart learning solutions.

The new academic year is expected to start in September, and the Ministry of Education and Science has declared that higher education institutions will embrace both distance and on-site learning.[2] Indeed, in Latvia, internet usage is widespread, not only amongst university students. According to the Latvian Central Statistics Bureau (CBS), the proportion of households with access to the internet at home is increasing year on year, and in 2019 reached 85.4% (Figure 1).

Figure 2 shows the most frequent online activities of the Latvian population in 2019.

Through *Skola 2030* (https://www.skola2030.lv/lv23), Latvia is introducing a competence-based, outcomes-focused curriculum spanning 7 fields of study, 6 skill areas (including critical thinking, self-directed learning, and digital competence), and 12 values (including diligence and solidarity) (OECD, 2020).

Figure 1. Internet access in the home in Latvia (source: CBS, https://www.csb.gov.lv/en/statistics/statistics-by-theme/science-ict/computers-internet/search-in-theme/2580-internet-usage-habits-latvian).

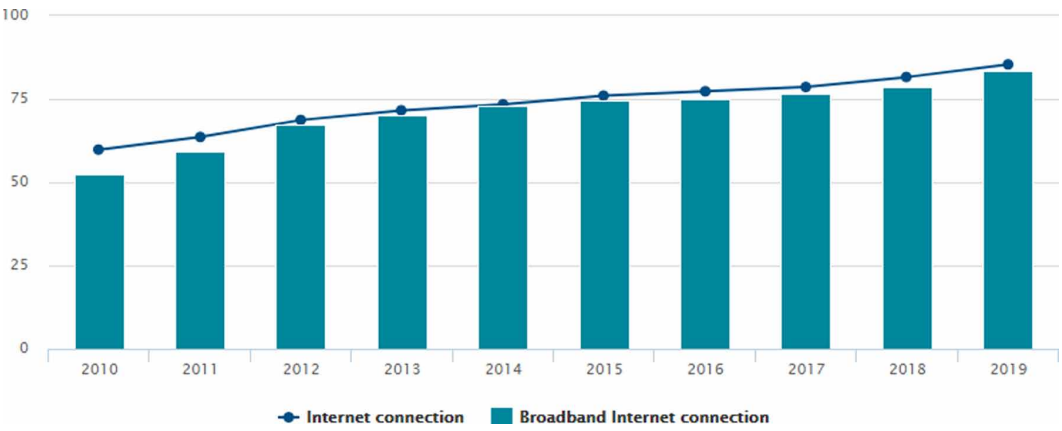


Figure 2. The internet activities of the Latvian population in 2019 (source: CBS, https://www.csb.gov.lv/en/statistics/statistics-by-theme/science-ict/computers-internet/search-in-theme/2580-internet-usage-habits-latvian).

	Total	of which:		of which by age group:					
		males	females	16–24	25-34	35-44	45-54	55-64	65-74
Sending/ receiving e-mails	83.4	80.8	85.8	89.9	92.8	89.4	81.5	73.0	61.0
Internet banking	83.1	80.7	85.3	79.9	91.7	88.2	84.0	76.8	64.5
Reading online news sites/ newspapers/ news magazines	78.5	79.2	77.8	67.4	80.2	81.3	81.0	79.4	76.2
Participating in social networks	75.1	70.2	79.5	95.8	91.1	80.0	70.3	54.4	43.4
Sending messages in texting apps	73.9	70.0	77.4	90.6	89.8	79.5	69.5	57.1	38.1
Finding information about goods and services	71.8	71.0	72.6	74.4	83.4	77.7	70.7	62.8	45.4
Telephoning (including video calls)	66.0	62.5	69.2	79.4	77.5	67.0	62.1	52.7	49.6

The coronavirus (COVID-19) pandemic has accelerated aspects of this reform by fueling demands for more innovative digital content.

From the research, it emerges that online learning is considered an opportunity to support the Smart Specialization Strategy, following the European Union priorities for development: [3]

- High added value products;
- Productive Innovation System;
- Energy Efficiency;
- Modern ICT;
- Modern education;
- The knowledge base;
- Polycentric development.

3.2. The Polish Case

In Poland, lockdown restrictions began to be implemented in March 2020. Fortunately, the situation remained largely under control in the majority of Polish regions, with the exception, for a brief period, of the southern province of Silesia.

In common with other Polish HEIs, then, the case study university faced the COVID-19 pandemic emergency by following the MSUI recommendations, and completed the third academic semester by adopting distance teaching-learning solutions.

At the beginning, it was not easy to make decisions concerning the safety of students and the academic staff since the general situation was very unclear owing to the spread of inaccurate and deceptive information (Parmet & Paul, 2020; Qi, Du, Liu, Zhao, & Dong, 2020). It seemed, at first, that the infection would last only a short time. Initially, therefore, the lockdown was imposed for two weeks, but it soon became clear that it would need to be prolonged.

Despite the uncertainty, however, the university decided to immediately adopt remote teaching-learning and smart working practices, whilst measures were taken to minimize the disturbance for students and academic staff. It was necessary, for example, to define reliable procedures to ensure the continuation of regular lectures and the exchange of information, and to organize end-of-course and graduation exams.

On March 14, the administrative offices of the university were closed, and all employees were urged to work from home using Microsoft Teams.

All didactic activities were switched to distance learning, selecting, also for this, the Microsoft Teams platform to organize and conduct online lessons.

On March 28, the procedures for sitting bachelor's and master's exams were established.

3.2.1 The ERT Experience Of The Polish Higher Education Institution

At the beginning of June, 20 academic teachers from the university were interviewed by telephone regarding their experiences of remote working.

They were selected considering their interest in online learning, full participation in the ERT courses, and participation in the bachelor's and master's exams.

The interviews were based largely on multiple-choice questions with a few open questions.

All the interviewees were asked about their experience during the lockdown and the emergency remote teaching (ERT). In particular, they were asked to express their opinions about:

- efficacy of learning and collaborating in an online environment;
- access to the ERT information;
- access to the university's Information Technology infrastructure;
- satisfaction with the ERT environment and tools;
- satisfaction with the solution adopted for taking exams from home.

Respondents were aged between 30-60 years old, and were mostly female (80%). They were encouraged to comment on their experience, focusing on the perceived advantages and disadvantages. Furthermore, they were asked to give their suggestions in the event that the university has to continue holding lectures online for the next academic year.

100% of respondents asserted that, in the beginning, it was difficult for them to switch to online teaching. Most (80%) complained that they had had little time to organize their teaching activities. Many also decried their own scant technical knowledge (40%) and their personal difficulties in using the online learning platform (35%). Overall, 70% expressed the opinion that the online platform was not appropriate for hosting large groups of students (more than 15). Table 3 shows the main issues encountered by teaching staff in their remote teaching activities.

The majority of respondents (90%) reported that they had experienced problems with the internet. Most respondents (80%) found online teaching to be more time-consuming compared to traditional teaching, with many claiming that an online lesson requires twice the amount of time a traditional one does.

75% of respondents were satisfied with the learning outcomes of their students.

90% claimed that they would like to improve their own competence in online teaching-learning, and declared themselves willing to participate in initiatives organized by the university for this purpose. They also recognized that online teaching-learning could enhance learning flexibility and support individual learning according to an individual student's capabilities and availability.

The vast majority of respondents (90%) pointed out that the primary disadvantage was the difficulty of interacting with students. They said that students were passive, and often they switched off the webcam, claiming it slowed down the internet speed.

Many of the respondents (70%) decried their initial lack of preparation in using online learning platforms. In fact, Microsoft Teams was completely unknown to 80% of respondents.

Table 3. Teaching staff difficulties in ERT (own source)

Issues	High	Moderate	Low	None
Lack of technical knowledge	10%	30%	40%	20%
Initial lack of preparation in using the online learning platform (Microsoft Teams)	20%	50%	20%	10%
Difficulties in using the online learning platform (Microsoft Teams)	10%	25%	30	35%
Little time to organize lectures	50%	30%	10%	10%
Suitability of the platform for many students (more than 15)	10%	20%	20%	50%

All respondents complained about the amount of time needed to implement and conduct lessons via the online teaching-learning platforms. 65% had problems with the procedures established for the exams, and were convinced that many students cheated. 80% suggested improving the exam procedures in the event that remote teaching-learning continues in the next academic year. 75% were ready to participate in the analysis for the design of the new online teaching-learning procedures.

Interestingly, some teachers (30%) expressed the desire to continue their theoretical lectures online regardless of the outcome of the pandemic emergency.

3.2.2 The Students' Experience

From the 1st to 6th of June, 20 students were interviewed via telephone, using a structured questionnaire. Respondents were aged 18-22 years old, and were equally divided with 50% males and 50% females.

They were asked to comment on the advantages and disadvantages of online learning during the suspension of face-to-face classes.

Moreover, they were also urged to express their opinion about the extension of remote teaching-learning to the next academic year.

45% of students responded that remote learning allowed them to save money on lodgings.

80% of respondents appreciated teachers' flexibility and their availability for additional online meetings. 90% of students stated that they were satisfied with the level of engagement of teachers, and 100% expressed their appreciation for the work of administrative staff. In fact, they noted that they had had no problems during the closure of the administrative offices. Table 4 shows how students evaluated the availability/engagement of teaching and administrative staff.

On the other hand, all the students felt that the main disadvantage was the interruption of social relationships. All the students missed their group mates and the contact with their teachers, whilst 45% complained of frequent problems with their internet connection, claiming that it sometimes broke down or was too slow, with the resulting difficulty of participating in classes.

Moreover, 45% of students had encountered technical problems in using old computers and smartphones. They also encountered problems using Microsoft Teams. The most commonly reported difficulties were:

- The program didn't allow desktop sharing with their contacts;
- It was impossible to see the latest messages or threads;
- The webcam or audio didn't work properly;
- The program didn't respond.

Overall, all the students responded that they had had to spend much more time studying online compared to traditional learning. They also claimed that they had received much more individual homework, and felt tired after the academic semester.

Table 4. Evaluation of availability/engagement of teaching and administrative staff during the ERT (own source)

C	Very good	Good	Fair	Poor	Very poor
Teaching staff availability	35%	45%	15%	5%	-
Teaching staff engagement	40%	60%	-	-	-
Administrative staff availability	70%	30%	-	-	-
Administrative staff engagement	70%	30%	-	-	-

Despite the difficulties, however, the respondents confirmed that they would be open to continuing online didactic activity in the future. although they would like more consideration to be given to their own needs, above all in regards to the amount of homework, which should be less. Moreover, all of the students interviewed agreed that the university should provide them with laptops if online learning is to be introduced in the longer term. They also suggested that the university organize seminars on the use of the educational platforms.

3.2.3 Some Observations

In Poland, the adoption of massive online teaching-learning during the lockdown was an unheard-of experience. Although all higher education institutions had installed Learning Management Systems (LMS), such as Blackboard, Moodle, and Coursera, online learning had not previously been widely followed.

According to research by Statistica, in 2019, only about 5% of the Polish population as a whole had participated in an online course, while 10% had used some form of online training materials (Figure 3). The situation is a little different if we take students into account. About 15% of students had attended an online course. Slightly more than 30% of them had used online training materials, while 23% had had contact with the teacher/instructor through educational websites and portals. Figures 4, 5, and 6 show how online educational resources had been used in Poland prior to the ERT.

However, LMSs have often been used far below their potential to supplement traditional teaching, e.g., to share course materials, post announcements, and submit assignments. In fact, LMSs have only recently begun to be used to provide effective interactive functionalities. The forced distance-learning has induced experimentation with the use of virtual communication, such as video conferencing and virtual meetings. LMSs are now increasingly being integrated with various platforms for distance teaching-learning activities, such as Microsoft Teams, Zoom, GoToMeeting, and Skype.

From the research, it emerges that most teachers adopted the same modality they use in normal face-to-face teaching to the emergency remote teaching. Many of them ignored the fact that online learning has been investigated over the years, with results that have clearly distinguished between distance learning, distributed learning, blended learning, online learning, mobile learning, and other learning approaches.

In fact, these studies into online education over the last decades have resulted in numerous theories, models, standards, and evaluation criteria being developed, primarily focused on the design and quality of online courses (Arghode, Brieger, & McLean, 2017; Cook & Grant-Davis, 2020; Lee, 2017; Nortvig, Petersen, & Balle, 2018). In short, after a semester of remote teaching-learning and smart working, the experience of the investigated institution has confirmed what we already knew from previous research, namely that effective results for online learning programs depend on their careful design and planning.

Effective online education also requires investment. Teachers need to be taught how to design and deliver online learning modules, and a robust online learning environment should be implemented. Delivering traditional lessons online can be quick and low cost, but it is not the right way. On the contrary, becoming an expert in online teaching and learning requires application and time.

Figure 3. Online education in Poland in 2019 (source: https://www.statista.com/statistics/1121976/poland-online-education/)

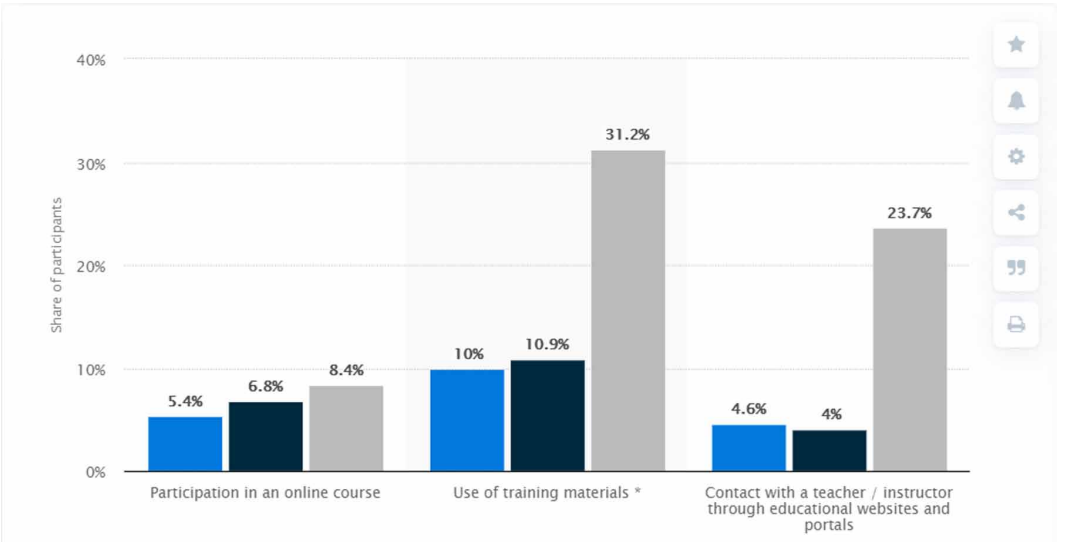
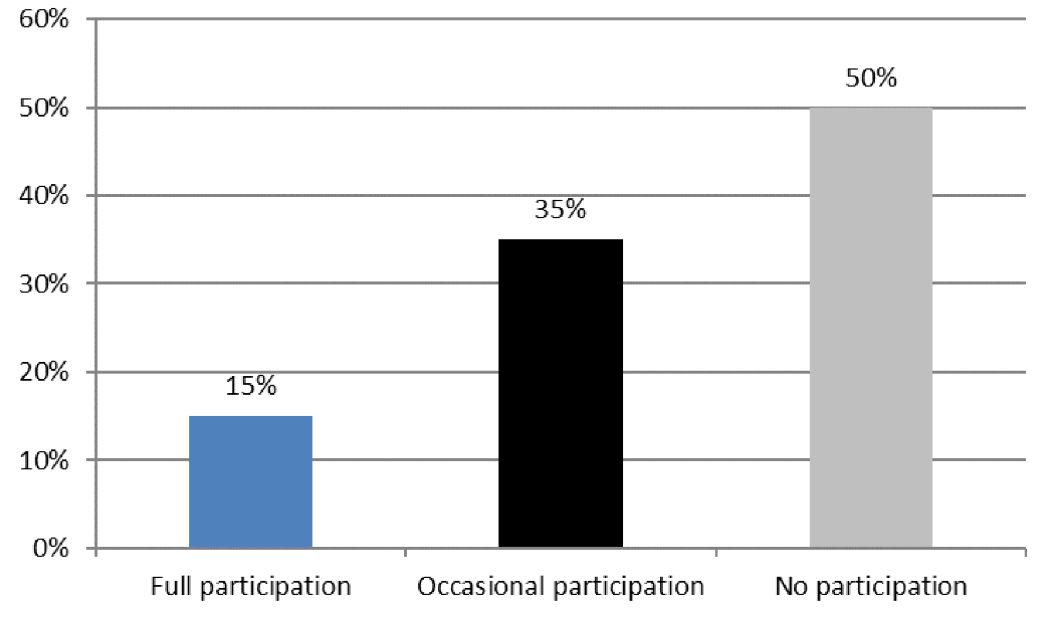


Figure 4. Participation in an online course before the ERT (own source)



Indeed, although the students and teachers interviewed generally agreed to continue with remote teaching-learning, they all clearly underlined the need to be trained in the effective use of the educational platforms. They expect the university to organize educational events to fill this gap.

Another, final, aspect concerns the need to provide psychological support to students to help them to overcome the lack of socialization in order that they stay mentally and emotionally healthy.

Figure 5. Use of online training materials before the ERT (own source)

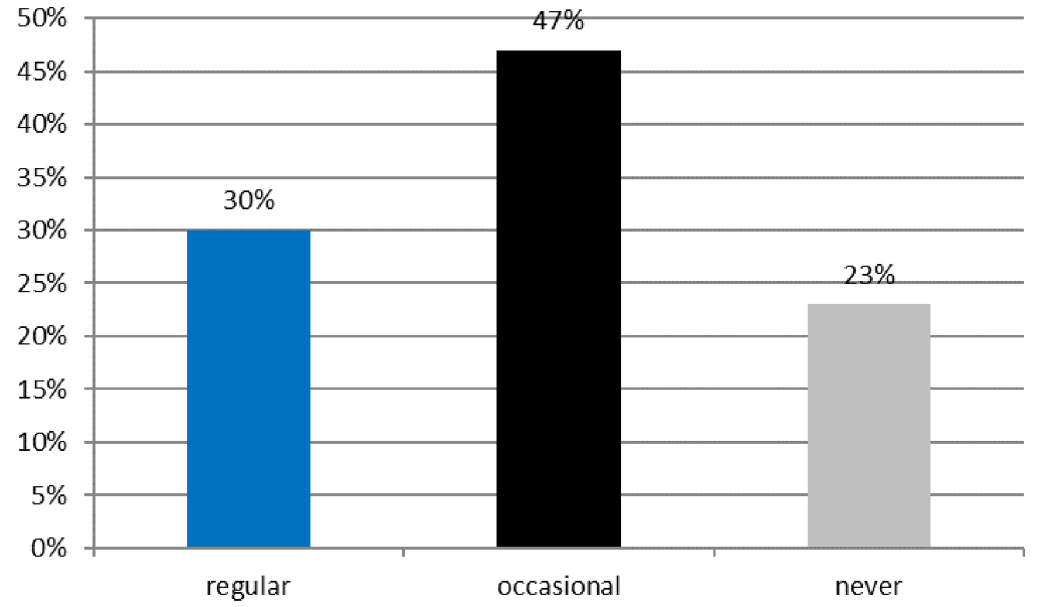
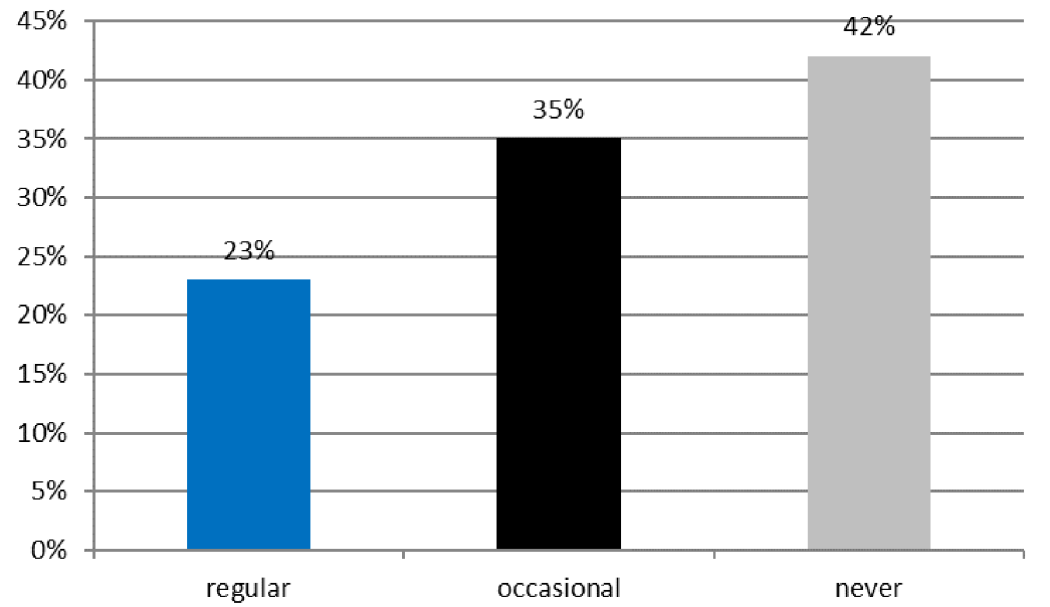


Figure 6. Contact with a teacher/instructor through educational websites and portals before the ERT (own source)



3.3 The Italian Case

In Italy, the first lockdown measures began to be applied on February 21, and initially covered ten municipalities of the province of Lodi in Lombardy, and one in the province of Padua in Veneto,

affecting around 50,000 people.

On March 9, the Italian government imposed a national quarantine. All movements of the population were restricted, except for reasons of necessity, authorized work, or health circumstances, until April 3.

On March 11, the lockdown was extended, forcing the closure of all commercial and retail businesses except those providing essential services, such as grocery stores and pharmacies.

On April 1, the government announced the extension of the lockdown until April 13.

On April 10, the lockdown was further extended to May 3, although stationery shops, bookshops, and children clothing shops were allowed to open as from April 14.

On April 26, the Prime Minister announced the start of the so-called "Phase 2" from May 4. Movements across regions were still forbidden, while movements between municipalities were allowed only for work, health reasons, and visiting relatives. Moreover, closed factories were re-opened, whilst schools, bars, restaurants, and hair salons remained closed.

In regards to educational institutions, on March 4 the Italian government ordered the closure of all schools and universities nationwide, initially until March 15.

For some Italian universities, ERT was seen as an opportunity to be leveraged with a view to accelerating the diffusion of digital learning processes. An exemplary case was the University of Turin, a higher education institution with about 80,000 students enrolled across 155 courses. This university organized more than 2,500 video-conferencing sessions involving more than 70,000 participants, releasing over 4,200 hours of recorded video by 3,500 academics and researchers (University of Turin, 2020).

On March 10, the Rector of the university into account issued a decree that prohibited face-to-face teaching activities and established that all forms of tests and exams had to be carried out exclusively by remote means. The lessons carried out remotely through the Microsoft Teams and Moodle (or other) platforms were considered as frontal lessons, to be recorded in the register of lessons in the university information system as "Telematic lessons".

In particular, this decree established the following principles for exams:

- identification of candidates through a smart-card or identity document;
- the verification by teachers that candidates didn't use any aids and no other people were in the room during the exam;
- compliance with articles 38 and 39 of the University Didactic Regulations and the due fulfilments for the correct registration of exams.

However, in exceptional cases, after evaluation by the Director of the Department, it was accepted that the examination board could consist of only one member.

At the end of June, 8 academic teachers and 12 administrative staff were interviewed by virtual conversations.

They were selected considering their participation in remote teaching, and their participation in the bachelor's, master's, and state exams.

The interviews were mainly based on open conversations and a set of multiple-choice questions.

All interviewees were asked about their experience during the lockdown and the emergency remote teaching (ERT). In particular, they were asked to describe their experience and express their opinions about:

- efficacy of smart working and the use of collaborative tools;
- efficacy of procedures for exams;
- access and use of the ERT and smart working tools;
- satisfaction with the ERT environment and tools;
- satisfaction with smart working procedures.

The administrative staff were aged between 30-65 years old, and were mostly female (90%). They were encouraged to comment on their experience, focusing on the perceived advantages and difficulties.

The academic staff were aged between 38-65 years old, and were mostly male (70%). They were also asked to give their opinion as to whether the university should continue to hold lectures online for the next academic year, giving reasons to explain their viewpoint.

3.3.1 The Smart Working Experience Of The Italian Higher Education Institution

The case of smart working at the university reflects, in many respects, the general situation afflicting Italian bureaucracy. One can consider Italian bureaucracy as *the bureaucracy of the suspect*. It is rooted in the idea of fighting the pervasive corruption, while at the same time *avoiding responsibility in decision making* and shifting everything downwards to the ultimate subordinates. It is the consummate expression of the Machiavellian attitude of 'passing the buck'. According to Sales and Melorio:

Corruption is a typical counter effect of the Italian state, since it arises among and is produced by members of Italian bureaucracy who work. The analysis of the history of Italian corruption shows clearly the systemic nature of the corruption within the Italian state. It produces as its effect the ambivalence of the victim (who is obliged to be corrupt) and the moral ambiguity of the state bureaucrats belonging to the corruptive systems (Sales & Melorio, 2019, p. 15).

Indeed:

In Italy, a culture of internal divisions, antiquated processes, parochialism, tax evasion, and outdated laws has stymied the land of the renaissance. Italy was losing its competitive edge in a world being redefined by globalization and technology (Datta, 2020, p.20).

Within the university selected for this research, a case of the bureaucracy of the suspect occurred during the lockdown. The organization of the state exam for about 20 students of a three-year course with professional qualification generated a series of bureaucratic problems that were only solved thanks to the dedication and scruples of a team of two administrative staff and two professors. The coordinator of the course and the administrative manager raised all sorts of bureaucratic quibbles about the emergency procedure developed by the team. This procedure, as far as possible, included checks to prevent candidates from cheating. However, on the eve of the exam, the procedure had still not been approved. The administrative manager refused to submit it to the department's director for their approval, claiming that this was the responsibility of the course coordinator. The latter not only refused to sign the procedure but, a few days before the exam, resigned. Luckily, her resignation lead to the course dean, an expert and pragmatic professor, replacing her as coordinator. According to the team that prepared the online state exam procedure, he solved all the bureaucratic problems simply by adding his signature. The team, through their own hard work, were then able to organize the exam without any further issues or objections.

The epilogue was, nevertheless disappointing. The administrative manager credited herself for the success, whilst the two administrative staff members who had designed and organized the exam's procedure were warned not to interfere in the future in matters of teaching-learning.

Despite the bureaucratic problems, the experience of smart working was a success. The administrative staff accepted the changes gladly. Most of those interviewed (80%), however, complained about the bureaucratic burden and the frequent presence checks by their managers.

Table 5 shows how the administrative staff evaluated the smart working experience.

Many respondents (78%) claimed that, at the beginning, the administrative managers did not adapt the organization of work to the new emergency situation. Their primary concern was to police

Table 5. Smart working evaluation by administrative staff (own source)

C	Very good	Good	Fair	Poor	Very poor
Collaboration with colleagues	5%	35%	35%	20%	5%
Support by managers	-	5%	50%	30%	15%
Clarity and readability of procedures	-	30%	45%	25%	-
Smart working tools	-	35%	65%	-	-

the respect of the working hours, checking the presence online of their subordinates. Moreover, the majority of managers continued to organize useless meetings that, in the absence of new rules, were even more difficult to manage and time consuming.

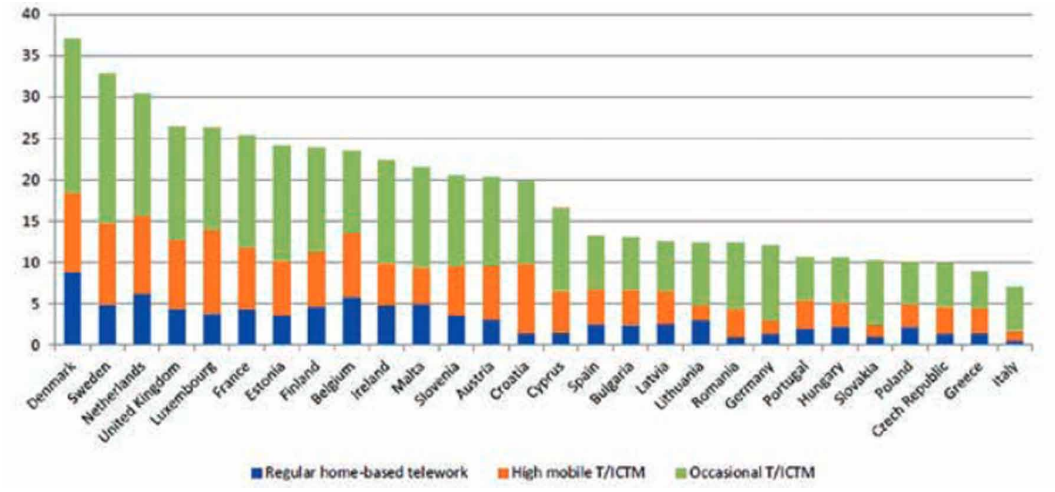
Nevertheless, smart working offered many senior employees the opportunity to emerge and share their expertise with their colleagues (see the case of the state exams). Online communication and tools fostered a bottom-up collaboration.

90% of respondents claimed that they would like to continue the smart working experience.

In Italy, the 3/2017 directive (the so-called Madia directive) fostered smart working in the public sector. To facilitate smart working arrangements, the Madia directive stipulated that work must be based on the actual employee performance, identifying specific, measurable, and compatible objectives coherent with the organizational context (Langè & Gastaldi, 2020).

However, unlikely as it may sound, in Italy there are no firm guidelines in place to define this further as there are, for example, in the UK (Hardy, 2008; Lake, 2015). Figure 7, in fact, shows the position of Italy among the other 28 European countries in regards to smart working at the moment of the Madia directive

Figure 7. The diffusion of smart working in European countries (source: Messenger et al., 2017, p. 15)



3.3.2 The Academic Staff Reactions To ERT

At the end of June, 8 academic teachers from the university were interviewed via Microsoft Teams regarding their experience of remote teaching.

They were selected considering their full participation in the ERT courses and in the state exams. The interviews were based on conversations and a few open questions, concerning:

- efficacy of ERT;
- effectiveness of the exams' procedures;
- access to the ERT tools;
- technical support;
- satisfaction with their experience.

Table 6 shows the teaching staff opinions in regards to these questions.

Table 6. The teaching staff opinion on their experience of remote teaching (own source)

C	Very good	Good	Fair	Poor	Very poor
Efficacy of ERT	5%	45%	30%	20%	-
Effectiveness of the exams' procedures	-	40%	60%	-	-
Access to the ERT tools	15%	30%	40%	15%	-
Technical support	60%	30%	10%	-	-
Satisfaction with their experience	15%	65%	20%	-	-

Most of the interviewees (90%) confirmed that they did not have previous experience in remote teaching and, in the beginning, merely tried to replicate their face-to-face teaching approach.

They suggested a number of ways to improve remote teaching for the future:

- Facilitating small group instruction;
- Stimulating group working (for exercises);
- Incorporating interactive shared documents (e.g., Google Docs);
- Collecting student questions by email and answering them during online classes;
- Using available technologies;
- Creating a virtual community with students;
- Integrating cameras and sharing screens;
- Establishing rules of interacting during online classes.

Respondents underlined the importance of teaching and administrative staff readiness. All shared the opinion, in fact, that an advanced ICT infrastructure is useless without those who know how to use and manage it. The main difficulties reported by academics (68%) with respect to remote teaching arose from the complexity of the instructional situation and from shortcomings in planning and organization:

[…] teachers have been offered hundreds of 'tips and tricks', mostly without the contextualizing knowledge needed to judge which teaching tactic is likely to work where (Rapanta, Botturi, Goodyear, Guàrdia, & Koole, 2020, p. 2).

A few respondents suggested creating a team to design and experiment with a learning units' general structure. This represents a new research field related to adaptive learning and learning analytics (Marzano & Lubkina, 2020).

5. CONCLUSION

It is impossible to present generalized conclusions due to the fact that the analysis was made only on three higher educational institutions.

However, from this research, an important thread to emerge is the willingness of academics and administrative staff to decrease the burden of bureaucracy, introducing and experimenting with new digitally based procedures that are not merely the computerized version of the existing manual ones.

The main factor that emerged to influence satisfaction with the ERT experience is that it reinforced digital education. During the transition toward the Industry 4.0 paradigm, digital education is becoming more and more necessary.

In all the three case studies, the ERT experience influenced teaching staff and students' opinions regarding digital learning. The experience showed that excessively long learning sessions should be avoided. After a few hours, learners are unable to maintain focus and motivation. It is necessary to stimulate the learners' attention through interactive activities, e.g., submitting one or two questions and use the responses to check the level of learning acquisition and, accordingly, to adapt teaching to meet the learners' needs (online teaching-learning adaptability).

Moreover, research has also demonstrated the importance of the cultural context. The bureaucracy of the suspect is, after all, something peculiar to Italian public administration.

In this perspective, comparative studies conducted in the European context may produce recommendations to design European guidelines for professional remote teaching-learning and agile working, improving the European social capital.

This article presented an exploratory research whose results will be used to investigate how to sustain the professional development of academic teachers and administrative staff in online teaching-learning and agile working.

Future study activities should compare the results of this research with other case studies in order to assess the extent to which they are generalizable.

The next research step will be to identify and analyze the sustainability of online teaching-learning and agile working, surveying a consistent sample of academics, students, and administrative staff through structured interviews and focus groups.

It should be crucial to evaluate the effort necessary to support structural changes to digital teaching-learning. There are many critical aspects of digital teaching-learning related to the re-skilling of in-service teachers, including short and long-term educational interventions.

Another question to investigate in a more extensive research concerns the organization of teams instigated to support the new forms of teaching-learning to avoid unmethodical individual initiatives' institutionalization.

Finally, hopefully, the COVID-19 threat will soon be only a memory. Nevertheless, it would indeed be a lost opportunity if we return to traditional teaching and learning practices as they were before the virus. In this regard, we agree with Sun, Tang, and Zuo:

Though COVID-19 has had a severe impact on normal educational progress, universities may take this unforeseen opportunity to detect deficiencies and speed up reform of online education through innovative course content, state-of-the-art technology and efficient management. We have to turn this emergency into an occasion to further promote international collaboration and share experiences, knowledge and resources to build a global online education network (Sun, Tang, & Zuo, 2020, p. 687).

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ENDNOTES

1 U-Multirank is the multi-dimensional and international ranking of higher education institutions (https://www.umultirank.org/export/sites/default/press-media/media-center/universities/2020/country-reports/LV-Country-report-2020.pdf).

2 Latvian Ministry of Education and Science: https://www.izm.gov.lv/en/highlights/4182-covid-19-several-restrictions-still-apply?highlight=WyJoaWdoZXIiLCJlZHVjYXRpb24iLCInZWR1Y2F0aW9uIiwiaGlnaGVyIGVkdWNhdGlvbiJd

3 https://ec.europa.eu/regional_policy/sources/docgener/informat/2014/smart_specialisation_en.pdf

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