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Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations

Fernando Ferri, Patrizia Grifoni and Tiziana Guzzo *

Institute for Research on Population and Social Policies, National Research Council, 00185 Rome, Italy; fernando.ferri@irpps.cnr.it (F.F.); patrizia.grifoni@irpps.cnr.it (P.G.)

* Correspondence: tiziana.guzzo@irpps.cnr.it

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Abstract: The aim of the study is to analyse the opportunities and challenges of emergency remote teaching based on experiences of the COVID-19 emergency. A qualitative research method was undertaken in two steps. In the first step, a thematic analysis of an online discussion forum with international experts from different sectors and countries was carried out. In the second step (an Italian case study), both the data and the statements of opinion leaders from secondary online sources, including web articles, statistical data and legislation, were analysed. The results reveal several technological, pedagogical and social challenges. The technological challenges are mainly related to the unreliability of Internet connections and many students' lack of necessary electronic devices. The pedagogical challenges are principally associated with teachers' and learners' lack of digital skills, the lack of structured content versus the abundance of online resources, learners' lack of interactivity and motivation and teachers' lack of social and cognitive presence (the ability to construct meaning through sustained communication within a community of inquiry). The social challenges are mainly related to the lack of human interaction between teachers and students as well as among the latter, the lack of physical spaces at home to receive lessons and the lack of support of parents who are frequently working remotely in the same spaces. Based on the lessons learned from this worldwide emergency, challenges and proposals for action to face these same challenges, which should be and sometimes have been implemented, are provided.

Keywords: online learning; emergency remote teaching; technological challenges; pedagogical challenges; social challenges

1. Introduction

The coronavirus (COVID-19) was declared a global pandemic on 12 March 2020 and social distancing was adopted in many places to contain the problem. Indeed, numerous countries around the world decided to close schools nationwide to prevent or contain the spread of the virus, significantly affecting the learning of millions of children and adolescents. COVID-19 has highlighted the problem of the management of school lessons and learning processes worldwide, among issues. Technology can certainly be of support in this regard.

Ministries of education in different countries have recommended or made it mandatory to implement online learning at all school levels in various countries. This decision has also been supported by UNESCO [1], which has declared that online learning can help stop the spread of the virus by avoiding direct interactions between people. UNESCO [2] has additionally provided a list of free educational platforms and resources that can be used for online learning according to the needs of each educational institution, providing social care and interaction during school closures.

Online learning can be defined as instruction delivered on a digital device that is intended to support learning [3]. In the literature, several advantages of online learning have been highlighted: studying from anywhere, at any time; possibility of saving significant amounts of money; no commuting on crowded buses or local trains; flexibility to choose; and saving time [4–6]. Online learning is thus becoming more and more important for education during the time of the worldwide health emergency, offering the opportunity to remain in touch, even if remotely, with classmates and teachers and to follow lessons. However, many challenges have been observed in different countries. The most evident and widely discussed by experts and policymakers is that socially disadvantaged groups face difficulties in meeting the basic conditions required by online learning [7]. The next section introduces previous studies on online learning in emergency situations. Lockdowns and the subsequent closure of educational institutions seem to have amplified the gap between rich and poor people, not just between the Global North and the Global South, but also within countries. School closures could have a negative impact on learners from lower socioeconomic backgrounds, widening the gap with their more advantaged peers [8]. Indeed, on the one side, there is the main objective of safeguarding health, while on the other side the aforementioned problems are emerging.

The adoption of online learning in a situation of emergency represents a need, but it has also stimulated experts, policymakers, citizens, teachers and learners to search for new solutions. This is producing a shift from the concept of online learning to emergency remote teaching, which represents "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" [9]. As stated by UNESCO Director-General Audrey Azoulay: *"We are entering uncharted territory and working with countries to find hi-tech, low-tech and no-tech solutions to assure the continuity of learning"*. For this reason, new challenges and opportunities at a social and technological level may emerge. It is an experience that enables us to reflect on the different approaches and lessons learned in different countries and additionally provides an opportunity to find new solutions. In fact, greater reflection on and study of social challenges related to the current pandemic and more generally to global crises are necessary [10].

There are several studies on online learning during emergencies. Besides confirming and reinforcing the challenges identified by previous research, our study provides a framework on the opportunities, challenges and lessons learned in different countries during the COVID-19 emergency, with a special focus on Italy. Although previous investigations have offered some paths to follow, they do not provide specific actions deriving from lessons learned. Our study aims to contribute to filling this gap. Indeed, starting from the previous works, and enriched by an online discussion forum and data from secondary sources regarding Italy, we extract challenges and proposals for action to face these same challenges, that different actors (policymakers, professors, etc.) should implement to face the ongoing and emerging challenges. United Nations [11], in fact, in order to mitigate the negative consequences of the COVID-19 on education, are encouraging governments and stakeholders to take actions and to accelerate changes in modes of delivering quality education, leaving no one behind. According to [11], inclusive changes in education delivery through education investment and reforms at the governance level are necessary. This pandemic can be an opportunity and an exercise for emergency remote teaching to evaluate emerged challenges during emergencies and develop a coherent online education strategy for any other emergencies or natural disasters that can potentially happen in the future. This is also underlined by UNESCO: [12] "Education systems around the world are facing an unprecedented challenge in the wake of massive school closures mandated as part of public health efforts to contain the spread of COVID-19. Governmental agencies are working with international organizations, private sector partners and civil society to deliver education remotely through a mix of technologies in order to ensure continuity of curriculum-based study and learning for all". Furthermore, one of the aims of The Global Education 2030 Agenda of UNESCO [13] is the quality education which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". In this context, more attention is necessary on how technology and learning can be integrated effectively, including the vital role of teachers, and the students' needs. Therefore, it is very important to analyse challenges related to emergency remote teaching and indicate proposals for action to face these

challenges; these proposals are addressed to government, decision-makers and stakeholders in order to guaranty quality in education. The purpose of the manuscript is to reflect on the summary of opinions by experts coming from an online discussion forum and the data analysis of the Italian case study, and which served to substantiate proposals for action as crucial to meeting the new challenges listed.

For this reason, a qualitative research method was undertaken in two steps. In the first step, a thematic analysis of an online discussion forum was carried out. This forum was organised in the framework of the HubIT project [14] and involved experts concerning the challenges faced during the current crisis. In the second step, we carried out an analysis of secondary online sources, like web articles, statistical data and legislation, to analyse our Italian case study.

The paper is organised as follows. Section 2 provides an analysis of the literature on criticalities and the challenges of emergency remote teaching. In Section 3, the methodology is described. Section 4 discusses the challenges that emergency remote teaching is presenting, identified during the forum discussion. Section 5 describes the Italian case study through an analysis of secondary sources. Finally, Section 6 concludes the paper.

2. Related Works

Despite the crisis produced by COVID-19, online learning has enabled many people to continue teaching and learning without interruption. The pandemic crisis is the reason for the widest experimentation in online education globally. However, a systematic approach to understanding the pros and cons of online learning and for investing, planning and delivering it is necessary, given its broad implementation and expansion [15].

During the school closures, existing inequalities connected to different socioeconomic situations have increased mainly due to the following reasons: (i) lack of resources, including access to educational technologies and the Internet; and (ii) lack of physical spaces to carry out home-based learning among families from poorer backgrounds, who lack the basic skills to support their children, especially regarding secondary education [16–19]. There is some evidence that school closures can produce significant losses in educational achievement, in particular for disadvantaged students [7].

In the Netherlands, these factors have resulted in a large gap in how children have been learning during this emergency period [17]. In developing countries like Ghana, in which the majority of students do not have access to the Internet and adequate learning environments, such discrepancies are even more apparent [20]. Similar challenges have also been faced also in Malaysia. To overcome these difficulties, Yusuf [21] suggests that institutions should provide more adequate e-learning platforms to increase access to the Internet and develop an interactive learning approach. Moreover, it is necessary to provide workshops or training for teachers and students to improve their technological and pedagogical competencies in online learning. The question of inclusion is central when we consider emergency remote teaching. Inclusion may have different characteristics across countries. For example, in South Africa inclusion is connected with processes of de-colonisation. Indeed, according to Omodan [22], there is the need to decolonise rural universities in South Africa, to be able to respond to every unforeseen emergency, as an outcome of coloniality.

The advantages and limitations of using online learning in medical and dental institutes in Pakistan have been analysed [23]. This study found that online learning was a flexible and effective source that allows students to become self-directed learners, although disadvantages related to the inability to teach and learn practical and clinical work were also highlighted. Another criticality was represented by the lack of immediate feedback for students. In response, the authors recommended training faculty and developing lesson plans with reduced cognitive load and increased interactivities. According to Verawardina et al. [24], it is necessary to implement clear steps in applying online learning, such as preparing facilities, training with current technology, providing guidelines for teachers and students, offering interactive multimedia materials in line with the current curriculum and ensuring an evaluation system with a question bank.

It is important to view learning not as a process of information transfer but as a social and cognitive process [9]. In the planning of online learning, it is necessary to model not only the content but also the different interactions that occur in this process. In fact, Bernard et al. [25] have found that interactions increase learning outcomes.

This pandemic may accelerate some changes in educational models based on the pros and cons of the technology used for learning purposes. Thomas and Rogers [18], starting from their experiences of online learning during the pandemic emergency, have observed that school-provided IT systems are frequently too expensive, cumbersome and quickly go out of date. They suggest moving to personal devices integrated into schools. Moreover, they recommend that policymakers incentivise and encourage companies to produce engaging and powerful educational games and learning environments. To gamify education will encourage children's engagement and curiosity. Eder [26] additionally suggests using television or radio for online learning in order to reach learners who lack access to the Internet, although this requires time to plan and programme content. Nevertheless, it is worth noting that different media like radio and television were also used in 2014 during the Ebola crisis [27]. Furthermore, during the current crisis, some countries have used different modalities for online learning to avoid the problem of the digital divide. New Zealand, for example, has adopted a combined approach, using two television channels to deliver educational content, integrated with an Internet delivery and a hard-copy curriculum resource. In Queensland (Australia), due to poor Internet connectivity television has been used to engage parents as well so that they can assist their children in learning. In Portugal, hard-copy teaching resources have been promptly delivered to children's homes thanks to a partnership between schools and post office services [28].

Table 1 summarises some key obstacles to the effective use of online learning identified in the literature.

Table 1. Open challenges of online learning.

OPEN CHALLENGES		*REFERENCES*
TECHNOLOGICAL CHALLENGES	Access to infrastructure such as technological devices and an Internet connection.	[8,16–18,20–22,28]
PEDAGOGICAL CHALLENGES	Teachers' lack of skills in using technology. Need for training and guidelines for teachers and students.	[21–24]
	Need for teaching materials in the form of interactive multimedia (images, animations, educational games) to engage and maintain students' motivation.	[18,23,24]
	Lack of student feedback and evaluation system.	[18,23,24]
SOCIAL CHALLENGES	Lack of suitable home learning environment to study and parents' support.	[8,16–19]

3. Materials and Methods

In order to analyse experiences, opportunities, open challenges and lessons learned regarding online learning during the COVID-19 emergency, a qualitative method was used based on a two-step process. The first step consisted of an online discussion forum. This forum was organised to include researchers, professors and enterprises mainly from European countries and from Lebanon with expertise in information and communications technology (ICT), social science and education. The discussion enabled the participants to discuss and compare their experiences, primarily related to the COVID-19 crisis. We collected their opinions and experiences in a narrative way. The results from the forum represented the basis for the second step, in which starting from the main issues that emerged from the online discussion, we undertook an analysis of secondary online sources

(web articles, statistics, legislation) about Italy. Indeed, Italy was the first European country to undergo a long period of lockdown. Therefore, we decided as an Italian partner of the HubIT project to follow the debate among the opinion leaders in Italy and also to consider data from the Istituto Nazionale di Statistica (Italian National Institute of Statistics, ISTAT) regarding distance learning. The two previous steps enabled us to gain a complete picture of different statements from diverse perspectives and experiences. In these ways, we analysed and understood the challenges and opportunities as well the perceived need to accelerate innovation in online learning, considering pedagogical, social and technological points of view.

In the first step, we opted to conduct a discussion using an online discussion forum, as it represents a feasible alternative to traditional face-to-face focus groups [29]. In this lockdown period, online forums allowed a wide diversity of participants to join in the discussions and interact with each other from different geographical areas, exchanging their experiences and opinions without requiring long-distance travel. Furthermore, the public accessibility of the analysis material allows other researchers to retrace the analysis process, adding greater transparency than in other qualitative methods.

In particular, we organised the discussion forum titled "Distance learning and emergency remote teaching: opportunities and criticalities at the time of the worldwide health emergency-SPEAK OUT!" in the framework of the H2020 project "The HUB for boosting the responsibility and inclusiveness of ICT-enabled research and innovation through constructive interactions with SSH research–HubIT" [30].

The sample of the study was selected by using a purposive sample, as is used when the opinion of experts concerning a particular topic of interest is considered necessary. This sampling is also called judgmental sample and it is a type of nonprobability sample; indeed, non-random criteria are used to decide units that should be included in the sample. In this study, we used, in particular, an expert sampling, and although it has the advantage to take opinions or assessment of people with a high degree of knowledge about the topics of interest, it has also some criticisms. If this sample is not representative of the entire population, then the findings are still not generalizable to the overall population at large, even if we invited people representative of the quadruple helix, in order to include different points of view.

Experts were thus chosen based on having characteristics relevant to the study and on being informative. In particular, experts were selected among the project partners of the HubIT project (which involves researchers, professors and industry representatives) and stakeholders identified among professors and experts in ICT, social science and education. The discussion enabled the participants to discuss and compare their experiences mainly connected with the COVID-19 crisis. When invited, participants were informed about the aims of the online forum and were asked to contribute to it and they voluntarily accepted.

To participate in the online forum, experts were required to register on METROPOLIS [14], the platform of the European project HubIT. The online discussion forum took place on 21 May 2020. Fifteen people from Portugal, the United Kingdom (UK) Italy, Estonia, Slovakia, Lebanon and Hungary attended it and a total of 162 comments were collected. This discussion forum is available at [30].

A semi-structured interview guide was used with questions pertaining to the opportunities and limitations of emergency online learning and related challenges such as the need for personal devices and an Internet connection, inclusion and accessibility problems, building a sense of community between learners and teachers, the use of interactive and engaging lessons and the potential use of emerging technologies. The forum was mediated by three moderators, who asked questions and addressed the discussion. Questions were addressed during the discussion forum; any new question was asked when the discussion on a previous question appeared to be closed as no one among the participants provided any new contribution. The method of analysis chosen was thematic analysis. Generally, thematic analysis is the most widely used qualitative approach to analyse data or information. It is used for "identifying, analysing, and reporting patterns (themes) within the data" [31]. The information collected was analysed and categorised, revealing three major themes: (a) technological challenges, (b) pedagogical challenges and (c) social challenges. Qualitative research

relies on unstructured and non-numerical data. In this article, we present the results of the first step through selected quotations that are most representative of the research findings.

In the second step, in order to extend and reinforce the online discussion, we analysed a concrete case study of a country of the project partners. Italy was chosen because, in the first phase of the pandemic's spread, it had the second-most COVID-19 cases after China, producing a long period of lockdown, with a strong impact on education. With this work we aim to provide a picture of the implications of distance learning during this emergency in this country, while also analysing statistics regarding distance learning and the digital divide from ISTAT [32], the policies implemented and the statements of opinion leaders in the sector. Experts were selected after an online review of the most significant sources in academia, press and scientific research. The most accredited names on the topic were considered the most relevant for the study. The results of the second step of the study are presented both through an analysis of the different statements of opinion leaders and through statistics from ISTAT [32] about the digital divide in Italy, to provide a picture of the Italian case study.

4. Results of the Forum Discussion: Open Challenges of Emergency Remote Teaching

Emergency remote teaching has given a significant boost to online learning, opening up new opportunities and reflections for the educational system. According to the discussion carried out within the forum, the COVID-19 crisis experience is presenting different challenges that should be addressed to develop new methodologies and pedagogical approaches, infrastructure and platforms specifically designed for online teaching. These new methodologies need to be developed in an interdisciplinary and holistic perspective that (following the responsible research and innovation approach) will anticipate and assess potential implications and social expectations [33].

Indeed, the COVID-19 emergency has made clear that technologies alone do not represent a panacea. The long-term inequality gaps between students in different situations in education systems have frequently been highlighted during the COVID-19 pandemic period. Students and teachers have faced different obstacles in remote teaching due to the existing limitations related to technological, pedagogical and social challenges, which will be analysed in the following sections.

4.1. Technological Challenges

Technological challenges are primarily related to a lack of Internet connectivity and electronic devices. This problem may increase inequalities through uneven access to the technology needed by students and teachers. Indeed, not all learners have access to the necessary technologies to take advantage of online education such as a fast Internet connection and a powerful computer. During the forum discussion a very frequent situation in families with children was described:

> *Just think of families where there is more than one child in school with no or one computer. This means that in parallel only one child can take part in a digital online education course.*

These issues especially affect many disadvantaged families, but also middle-class families with multiple children, or parents who are engaged in smart working. Numerous initiatives have been organised in some European Union (EU) member states to overcome this situation:

> *In Hungary, we have initiated the collection of offers of ICT companies. They could offer technological help (e.g., installation), offer a platform to be used for free for x months, use computers for families, etc.. This has since been extended by the government, making it a bit bigger, but still, there is a huge need for much better coordination and more support. There is a community where teachers can offer their free time to help families who need it.*

Some actions at the regional level to incentivise the purchase of devices have also been implemented in Italy. Even Estonia, with its high level of digitalisation, has encountered some difficulties. Indeed, during the forum discussion, it was underlined that:

Even in Estonia, the networks are not so complete. Our kids had some issues with the Internet and also with devices. It was nice to see that IT communities started to offer the computers for those families who had problems with enabling the devices for learning, and they donated devices for free!

Moreover, there are differences between rural and urban areas. In rural areas, in particular, there are several obstacles to accessing computers and laptops across Europe:

The acute challenges are electricity and technology. Let alone the developed countries, many villages in developing countries don't get proper electricity. Regardless of that, there are so many who use their phones to do their homework. It's possible of course but in the long term, it is going to have serious detrimental effects on the education quality and level.

One problem observed in all countries (albeit to different extents) was insufficient bandwidth, producing delays or connection failures during lessons and video conferences. In fact, not all geographical areas are reached by a broadband connection. This means that in some cases there is a structural gap that represents an obstacle for people connection. This problem was also said to occur in Estonia, where digital tools are part of everyday learning and e-learning days are part of curricula. The digital learning environments created were not designed for such intensive use as in the pandemic crisis, resulting in collapse in the first few days when all schools tried to run them:

In London and the UK, the Wifi has been down a lot! According to the UK providers, 'the population across the UK is using the Wifi connection more than ever'! I have been, personally, 'ICT challanged' from the start of the lockdown! I have been using three different Wifi connections and mobile data from my iPhone!

Therefore, first of all, it is necessary to overcome problems related to connections, considering the implementation of 5G technologies. The large-scale testing of 5G would allow a more efficient connection and therefore, an improvement in online performance and the types of technologies that can be used at distance. This emergency will provide a boost in this direction:

The problem with the Internet connection definitely will change with the development of 5G: bigger data amounts can be transferred and in situations like with the coronavirus it may have benefits.

This is a technological issue, but also a challenge connected with governance and policies related to the adoption of 5G in Europe and worldwide. The lessons learned in other countries can facilitate new reflections about the best technologies and approaches to use in the future. In some countries like Croatia and Serbia, for example, the government provided online learning classes broadcast via TV for primary school students, with online/distance learning starting the day after the lockdown [34]. This allowed all families to be reached and learning to recommence immediately. This is a possible approach that requires a high level of central coordination. Such a positive experience of using TV is very important because it enables us to reflect on the use of a medium that is widely available and accessible to families, particularly in rural areas. Historically, TV has played a significant role in distance learning; for example, in Italy from the post-war period until the 1960s, there was a television programme that offered a literacy degree for families, especially in rural areas where illiteracy rates were high. These examples suggest the use of a multiplatform approach where TV can play a role among the various technologies proposed.

Other issues underlined by the experts were ethics, privacy and copyright related to the intensive use of online devices by learners and to performing online evaluations due to fraud detection:

There is an overly extended exposure of students on digital devices from PCs[1] *to tablets to smartphones. These changes have been forced on students and society in less than two weeks, and many ethical steps*

[1] Personal computers.

have been forgotten for the sake of health. If a change is not opportunely prpared or planned, it can never be sustainable.

In addition, the phenomena of using resources without creators' permission, certification and proper supervision were emphasised. Consequently, actions that increase awareness among users and safe infrastructure for training courses for children were said to be necessary:

I think there is so much more space for hacking/cybercrime. Especially when it comes to children. More of their private information is being stored online. A lot of institutions also use niche services. Especially those institutions that didn't have any remote learning technologies before are most probably not aiming at implementing their own long-term expensive option and would prefer to opt for a short-term solution.

4.2. Pedagogical Challenges

There is not only innovation linked to technological aspects but also the emergence of new pedagogical aspects. Online learning implies revising the approaches used in face-to-face lessons. Experiences of social distancing during the pandemic have enabled us to understand that:

Pedagogical patterns must be different in virtual classrooms. In the virtual classroom, the educator is more like a moderator and consultant, and lessons cannot be arranged as in a physical classroom. Therefore, learning, especially guidance and feedback, should be given in a different way.

Innovations in teaching methods are therefore needed to engage students, stimulating their proactive behaviour, which is difficult to obtain when one is only connected online. In particular, new approaches to maintain children's attention and participation on a screen for a long time are needed.

First of all, in order to plan an adequate pedagogical course for remote teaching, it is necessary to increase the technological skills of all the actors involved. In various countries, challenges related to gaps in digital literacy in education among teachers, students and parents were said to have emerged.

Teachers should be trained to increase digital and other specific skills for online education in order to adequately plan and implement an innovative pedagogical programme. Although students are usually very familiar with the use of digital devices, they may not be prepared to receive remote teaching and it is quite difficult to capture their attention. Furthermore, parents may not have the necessary educational level and language competence in terms of digital skills. Indeed, the forum discussion underlined that:

Criticalities and limitations appeared to be the teachers' skills; students are more skilled in digital issues as they spend a lot of time engaged in digital communication. Teachers need to manage several operational environments and in the beginning it is messy, with technical problems, a lack of knowledge of the options in certain environments, etc.

Countries like Hungary where the day starts with the teacher collecting the digital devices from the children and are highlighted as forbidden tools . . . IT education meant Microsoft Office basic use . . . these children, parents and teachers now face a huge challenge and it is not a wonder that the change is big, but we are still far from digital education and even online education.

In many countries, primary schools in particular have never widely experimented with online learning, especially in an emergency situation. Nevertheless, the huge amount of content and information available on the web, frequently structured and planned content for primary schools, are limited; teachers have endeavoured to organise and provide structured content, and parents were complaining that they did not know how to help kids with homework. During this pandemic lock-down, when children were asked to get connected for their lessons, parents were frequently involved in smart working.

Moreover, due to the lack of proper digital devices, some students were forced to use a smartphone to watch lessons without optimised digital content. Although mobile learning offers the possibility of ubiquitous computing, there are many technological limitations related to the inferior functionality involved compared to desktop computers [35]. It is also necessary to deal with the issue of optimising the learning of digital content for mobile devices. Optimising content allows reducing the time spent using smartphones, which represents a critical issue for students' levels of attention and concentration.

> *In this case, IT infrastructure is playing a fundamental role. I am not talking about the lack of proper digital devices. You cannot ask a boy or girl to spend six to eight hours a day watching lessons on a smartphone. This is mainly also due to the lack of optimised digital content. I think the opportunity, in the medium to long term, is that we understand how to be connected, what to say, what to ask students.*

An open question is the use of online learning for young children in kindergarten. For example, in Italy, kindergarten and preschool teachers shared children's songs with parents, short educational videos with simple games and readings told by the teachers to maintain a psychological and pedagogical contact with children. There is a wide debate in the literature related to the types of consequences of children's use of ICT devices before they reach school age. Frequently, families also have different attitudes towards technology and online learning. During the forum discussion it was observed that:

> *Parents who were by now against digital devices and encouraged their children not to use them, even for learning purposes, faced that their children didn't want to use these devices, as they didn't actually know how to use them. This caused in many families a huge issue. I believe that ICT technologies and devices need to be used by children even in their early ages, but there is a need for control over what and how they use them.*

Many universities had already started to introduce experiences of online learning to reduce costs. Therefore, they have encountered fewer difficulties relative to other levels of schooling. COVID-19 is proposing an acceleration in this direction. There are many online learning opportunities offered by well-recognised universities and the offer is growing as a consequence of the COVID-19 pandemic. Cambridge University, for example, was the first university in the UK to announce the delivery of all classes fully online up until September 2021. Students at some universities need to pay to attend online classes, while other universities only require payment for examinations. This issue opens a reflection on the classic model of universities and on the development of a hybrid model that enables students to not be fully present, thereby reducing costs for families and making university access more inclusive. During the forum discussion, the need for governments to take action in the very short term to define strategies focusing on digital education assessment was emphasised.

> *Teaching is different from assessment. This is where remote learning falls short, whether you take biology labs, violin performances, or sports assessments as exams or even graduation projects.*

COVID-19 has also given a boost to the open education resources (OER) approach, related to connectivism theory. This initiative enables the collection of large amounts of free educational materials available. For example, the Design Museum in London provides free lesson plans.

In Italy, too, museums have made virtual tours available online. This free content could be used during lessons. The use of multiple channels and certified resources made available by different institutions require training on how to access these content.

A large amount of content is not always usable; indeed, this content needs to be organised. This can be facilitated by building communities for sharing such content in an institutionalised way, thereby increasing common knowledge. This can also help teachers and professors to overcome the criticalities and difficulties of using a cooperative approach:

Professors and teachers have been under more pressure, not all of them have lectures ready to be presented online, but it is educative and gives a nice boost to the next generation's learning. I hope the next steps are e-learning facilities in secondary schools as well.

However, some experts were critical of this approach because, from a business point of view, some institutions might start collecting all free materials and charging for them.

The presence of online learning during emergency periods enables students to remain in touch with their teachers and also with other students. However, some key issues are building a sense of community between learners and teachers and producing interactive and engaging lessons where all students also know each other.

According to the experts, a community of learners and teachers can be built by increasing "human" cyber interaction:

Platforms can support as much human interaction as possible (multimedia): teachers should be perceived as 'humans' and not some other teaching bot or an artificial agent available online. Interaction is key, I feel.

Furthermore, students' engagement could be increased via informal social activities, such as games and social chats:

Learners and teachers should support each other, but teachers may lose their position in learning: learning will go in the direction of cooperation.

The older generations need to catch up with the younger generations' use of IT. Gen Z in general functions in different online communities quite naturally. If there is a joint shared interest it is going to work, I believe.

The engagement problem can also be overcome by using participatory approaches to education in conjunction with the use of online technologies. The use of co-creation platforms in online learning was also suggested, in which students can become more involved, even participating in creating content for lessons.

4.3. Social Challenges

The emergency was said to represent a good opportunity to acquire practices that promote independence and responsibility from the students' side. However, one of the main limitations is the loss of human interaction between teachers and students as well as among students:

Human interaction is fundamental, especially for young students (secondary, primary schools) that need to learn. Only good professors/teachers can do it.

We need face-to-face interactions, we need to feel emotions, and that can not be given by a 100% remote experience.

According to the experts, although the use of ICT "gadgets" is like "an extended arm" for students around the world who feel comfortable with them, there is no substitute for proper teacher-student interaction. To mitigate problems of inclusion, the experts suggested using a blended approach, whenever possible. Blended learning is defined by [36] as "the thoughtful fusion of face-to-face and online learning experiences". It enables perceptions of "human" factors to be intensified and reinforces feelings of community belonging. Certainly, blended learning facilitates interaction, improving collaboration and social relationships among learners and between learners and teachers [37]. In the future, when normal education activities will be able to resume, a balance between learning at school and online learning should be established. Online learning is something that can complement face-to-face lessons. The forum discussion made clear that not all activities can be done online:

Honestly I do not think that everything would go online; I believe that things will go back to 'normal' in the future but there will be a larger percentage of digitally available education. Physical classes will not disappear at all and communities will stay alive; people are social, they need interaction.

A major challenge is to support students with special needs in their learning activities mitigating any risk of inequality and vulnerability. What do we do about schools of children with mental or physical impairments? This question calls for a new pedagogical approach, taking into consideration the potential advantages of technology.

Emergency remote teaching also presents some challenges for parents and teachers. During such an emergency, they may also be working remotely. This produces a problem relating to the availability of ICT devices for all members of a family. If all people are working at home, there is also a problem of physical space where each person can receive a lesson or do her or his work.

The logistics of online learning have to be carefully considered. Indeed, not all families have sufficient rooms to be used by their children:

My eldest studies at an Austrian university and they switched to fully digital when the State decided. It was quite funny seeing the exams when you are sitting at home with all the family, but no one was allowed to be in the same room for five hours. There's still a way to go... there is no copy-paste possible from the regular classroom to the web classroom.

Moreover, remote teaching for children frequently requires parents' presence, which may make it impossible for them to balance their work activities with supporting their children during their online learning experience. Furthermore, some parents do not have adequate literacy to support learning at home:

Small children need their parents' support, so what about the parent who is not able to work because they must play the teacher's role? How do parents work if they also need to look after their children at home? Studying (and playing)? This might end up disrupting the global economic model in the long run: work productivity will go down.

However, in some countries, emergency remote teaching is opening up new opportunities that are not necessarily linked to emergencies. For example in Estonia, parents look at this experience as a good opportunity for implementing online learning at full speed, in particular for families who travel a lot, who work abroad, who have specific needs and so forth.

This last indication is very interesting, as countries such as Estonia are already highly experienced in ICT. Therefore, the core issue is to understand how online learning can be used and integrated with face-to-face learning, additionally considering that many of the challenges are also connected with the need to overcome technological gaps.

5. The Italian Case Study

The experiences of remote teaching highlighted in various countries during this health emergency have some common issues. Here, we analyse the case of Italy. The picture did not return a uniform situation in the country. Indeed, a gap between north and south has emerged, especially considering the availability and types of devices and platforms used. In the northern classes, advanced platforms are being used and over 51% of students regularly attend video lessons. In the southern regions, students are mostly assigned homework to be done and corrected online. The technological endowment of families is the biggest obstacle impeding the definitive affirmation of online learning. Indeed, according to ISTAT [32], 42% of families do not have a PC in southern Italy, while this percentage is 33% in the rest of Italy. About 14.3% of families with at least one minor child do not have a computer or a tablet and in only 22.2% of families does every member have access to at least one PC or tablet. Therefore, it is evident that it is not easy for everyone to access digital learning content. Moreover, in 2019, two out of three 14–17 year olds had low digital skills.

To overcome this digital divide, several institutional or beneficial initiatives have been undertaken during the COVID-19 pandemic. Moreover, in some cities, campaigns to collect and donate technological devices for students who need them have been launched. Furthermore, the government is attempting to provide a practical solution. Indeed, Decree-Law no. 18 of 17 March 2020, no. 18 (Cura Italia) has allocated funds to encourage schools to use e-learning platforms and to equip them with digital tools, or to enhance those already in their possession. Other funds are being addressed to give less well-off students digital devices on free loan and to train school staff. One plan is for schools to receive funds for the purchase of computers and tablets for students who do not have them. Some companies in the ICT sector have even offered free services to support citizens and have collaborated with the Ministry of Education to make completely free platforms for institutions to facilitate the organisation and transmission of teaching. This emergency has made it clear that having widespread diffusion, across all social groups, of technological devices and broadband connections, is fundamental.

In order to have a more complete framework on Italy, we collected some important opinions considering different points of view involving opinion leaders from the world of press, academia and organizations. These sources are significant as they are qualified experts in the learning sector in Italy. They collect and influence the opinions of the public as well as the important choices made by decision-makers with respect to the problem dealt with.

According to Gervasio [38], opinion leader and journalist of a specialized magazine about the school, the biggest advantages of online learning are the overcoming of space-time barriers and increased flexibility in the ways and styles of learning. This enables the customisation of training paths based on the specific skills and objectives to be achieved by each student. However, some obstacles are technological, such as the difficulty of accessing the network, the speed of data transmission, the quality of students' and teachers' ICT skills, the ability to manage time and knowledge of the best ways to interact online with other students (i.e., to manage a feeling of the community). If students do not have the opportunity to access the network on a regular basis, they risk being left behind, inevitably leading to the alienation of some learners, especially if they are not prepared from the outset for a type of collaborative and constructivist learning.

Another important opinion was provided in the interview with Michilli [39], the General Manager of "Fondazione Mondo Digitale", committed to the creation of an inclusive learning society in which innovation, instruction, inclusion and fundamental values are all combined in a holistic vision.

According to her, it is important to capitalise on this crisis by overcoming all the gaps that are emerging. The commitment to innovate the system must come from institutions, with the collaboration of all actors (citizens, enterprises, non-governmental organisations). Italy is one of the countries with the highest rate of mobile phone ownership in the world, but many families do not have a laptop, PC or landline with an Internet connection. It is not easy to use a mobile phone for online learning, as even the most advanced smartphones do not allow adequate interaction for a long time. The infrastructure problem exists for many teachers and families. The Digital Economy and Society (DESI) Index [40] on Italy is clear: the country is far behind both in the use of fast lines and equipment. Other problems are teachers' and students' skills and the teaching approaches used. If on the one hand there is a wide choice of technological platforms, on the other, organised and certified content for learning is very scarce and publishers are still very traditional. Therefore, teachers often use technologies as a support for a traditional didactic form of learning in which frontal instruction prevails. Special attention must be paid to the "specific needs of students with disabilities"; to this end, the Ministry of Education, University and Research (MIUR) has activated "inclusion via the web", a new thematic channel for supporting teachers in online teaching paths addressed to children with disabilities [41]. As regards disabilities, inclusion within the classroom in the past was managed by focusing on collective teaching and group work, while isolation is a further element of exclusion. This is a huge problem that needs special attention and professionals in the sector.

According to Rivoltella (Professor at the "Università Cattolica del Sacro Cuore" on Media Education and Learning Technologies) [42], the emergency is compelling us to rethink teaching

practices. He focuses in particular on pedagogical and relational challenges. According to him, it is not enough to put students in front of a computer screen or assign them homework: educational planning is also needed. The biggest teaching challenges are managing students' motivation and attention; it is necessary to create the content and to also give precise indications to the students through the use of synchronous communication (chat and video communication) to interact, clarify doubts and discuss problems. Cooperation between students must be fostered; the real added value of technology is the possibility of sharing, working and cooperating in a group. Technologies can help reinforce feelings of being part of a community and generate new networks of relationships and meanings. They should transform all diversities (disability, language, culture) into a diversity that enriches rather than being an obstacle that adds separation. The quality of the relationship is not a matter of formats or tools and digital is not an alternative to presence. The relationship is the result of educational intentionality and the digital can be one of the ways to ensure it.

At the governance level, it is necessary to take action in the very short term for defining strategies to face and overcome the technological, pedagogical and social challenges discussed before.

In the case of a new emergency, schools need to use online learning. Therefore, the government has indicated that each educational institution should integrate into its annual plan of the educational offer a part related to digital teaching, identifying ways to redesign teaching activities, taking advantage of the lessons learned during the current emergency. The Ministry of Education also has started designing an official online learning platform. Full participation in online learning (where necessary) must be encouraged, whatever students' economic, social and cultural starting point. With this in mind, the government is activating the following actions to face the open challenges:

- protocols with the Professional Order of Psychologists to manage the emotional effects of the lockdown on students, school staff and families;
- agreements with mobile phone companies, for discounts on costs for connection;
- support actions to ensure that local authorities continue to complete the infrastructure that guarantees coverage of the entire national territory with broadband.

Furthermore, MIURprovided some guidelines [43] for the return to school in September 2020, in which the autonomy of the individual educational institutions was highlighted to better organise teaching activities, using forms of flexibility including organising each class into several groups based on students' levels of learning. The guidelines called for less frontal and more laboratory teaching, in small groups and not necessarily in the classroom, but also in different spaces to combine the need for distancing with innovation. The purchase of new furnishings is being favoured, such as new single desks that allow more collaborative teaching. Digital teaching can be integrated with face-to-face teaching but only in a complementary way in secondary school. Agreements between schools and local entities are being strengthened to encourage the provision of other structures or spaces, such as parks, theatres, libraries and cinemas, to carry out further educational activities or alternatives to traditional ones, but ultimately aimed at educational purposes. Furthermore, training courses for teachers and educational staff are being increased, exposing them to innovative teaching and learning methodologies and courses on interdisciplinary teaching models, multimedia technologies, teamwork and the digitalisation of administrative procedures.

6. Conclusions

Emergency online teaching has allowed schools to provide learning largely undisrupted during the school closures forced by the COVID-19 pandemic. However, there are several challenges to be faced. The results of the analysis of the online discussion forum with international experts, the data from ISTAT and statements of opinion leaders in Italy have revealed several technological, pedagogical and social challenges, additionally confirmed by the reference literature.

The technological challenges are mainly related to the unreliability of Internet connections when thousands of students and workers are simultaneously connected as well as the lack of technological

devices for many students. This aspect has been underlined by different studies [16–19], particularly in developing countries like Ghana, Malaysia [20–22]. The pedagogical challenges are associated with teachers' and learners' lack of digital skills, the lack of structured content versus the abundance of online resources, learners' lack of interactivity and motivation and the social and cognitive issues that teachers and schools must address in this situation. The lack of interactivity and motivation of students is connected with the social challenge related to the loss of human interaction between teachers and students as well as among students. In order to encourage children's engagement and curiosity, our results suggest the use of more interactive resources to gamify education, in accordance with Thomas and Rogers [18]. Moreover, there are problems related to the lack of physical spaces at home where lessons can be received and, sometimes, a lack of parental support.

Researchers, universities, educational institutions, businesses and policymakers must be involved in providing adequate answers to the challenges emerging from this worldwide experience. Online learning and emergency remote teaching should become a priority for policymakers in different countries, both in Europe and globally. Lessons learned from this emergency enable us to indicate challenges and proposals for action to face these same challenges addressed to policymakers from different countries so that they can address some of the open challenges. Here we reflect on the summary of opinions by experts coming from the online discussion forum and the data analysis of the Italian case study which served to substantiate the following proposals for action to respond to the identified challenges.

1. Reliable network infrastructure needs to be developed. Teachers, students and parents must have connectivity that allows them to be able to take lessons remotely even when other people in the same house are doing other online activities. In fact, the results of the online discussion forum underlined that the intensive use of networks during the pandemic crisis has produced connection failures in several countries, including Estonia, which is technologically advanced. One suggestion of experts was to develop 5G.
2. More affordable devices must be provided. Devices such as tablets or computers to be connected should be less expensive and Governments should give households incentives to buy them. All the involved actors must have suitable devices to follow a lesson remotely in the most comfortable way. This issue was underlined by the experts, in particular for families with more than one child. Moreover, for the Italian case study, the DESI Index shows that many families do not have a laptop or PC, even though this country has the highest rate of ownership of mobile phones in the world. The European Commission (EC) can play a key role in boosting facilities and infrastructure for online learning. This is also in line with the EC action plan to help individuals, educational institutions and education systems to better adapt for life and work in an age of rapid digital change.
3. Diverse modalities (telecourses, TV, radio, online courses) should be used to provide accessible learning experiences for students in remote areas, as already seen in some countries. The experts provided examples of Croatia and Serbia as countries where these modalities have been successfully implemented. This challenge has also been suggested by Eder [26].
4. Systematic training initiatives should be provided to improve teachers' and learners' technological skills in relation to new emerging models and approaches encouraging the effective use of online learning. The results of this study revealed that in various countries there are challenges related to gaps in digital literacy in education among teachers, students and parents. For example, in Hungary, there is no digital education and/or online education.
5. A clear and consistent plan should be developed, providing structured and planned educational material (content, methodologies and common goals) and more adequate e-learning platforms by using interactive suitable digital learning resources (video, animations, quizzes and games) to maintain students' attention. For example, in Italy, there emerged on one hand a wide choice of technological platforms and on the other very poorly organised and certified content for online learning. Co-creation platforms could be developed and made available, encouraging students' participation in content creation and their inclusion in the learning process.

6. Strategies for communication and digital education assessment need to be created. The lack of student feedback has also been underlined by [23]. According to the experts who participated in the forum, teachers should communicate consistently and often with students so that they do not feel isolated and confused. They should maintain constant contact with students, for example by creating a community group, sending them e-mails twice a week and setting up a frequently asked questions (FAQ) section so that all students can benefit from other students' questions. The experts emphasised that a community of learners and teachers can be built by increasing "human" cyber interaction.
7. A blended approach should be used whenever possible to reinforce a feeling of community belonging, thereby improving social interaction and collaboration among learners and between learners and teachers. According to experts, students need face-to-face interactions, so face-to-face lessons should complement online lessons.
8. Technologies that use virtual and augmented reality need to be improved, making them widely accessible and therefore more engaging and inclusive, in order to stimulate students' involvement and interaction. According to experts, some issues include students' online motivation and involvement. The implementation of these new technologies in online teaching could help in this regard.
9. The use of intelligent technologies for remote teaching, like artificial intelligence, needs to be reinforced to encourage personalised, inclusive and participatory online learning paths. This can open up new possibilities and provide added value to online learning, as long as it is integrated with the pedagogical methodologies used by teachers. In fact, in this study a need to personalise learning and make it more effective emerged.
10. More inclusive tools, platforms and devices considering different web content accessibility guidelines (e.g., WCAG 2.0) need to be developed in order to make digital learning resources accessible to a wider range of people with disabilities.

The open challenges emerging from this health emergency may prove crucial in improving the capability to provide effective online learning, in evolving educational models to overcome inequalities and isolation in emergencies and in preventing social exclusion. Policymakers, enterprises, experts, schools, students and families should collaborate closely to develop accessible and smart learning environments, educational resources and tools additionally able to maintain the sociality, inclusiveness and accessibility of education.

This study aimed to collect opinions, information and experiences and to identify challenges at the European level and proposals for action to face these same challenges addressed to the different actors (policymakers, researchers, teachers, etc.) to overcome the problems that arose during the first lockdown related to the COVID-19 pandemic. This study has enabled us to gain a picture during the first crisis of COVID-19 and it does not presume to be exhaustive. We are planning to extend it in the future providing a major empirical and theoretical corroboration to support the list of actions here hypothesized. Moreover, further research will analyse students' perspectives, experiences, attitudes and feelings and compare them across different countries, in order to provide a more comprehensive view of the phenomenon and to attain more detailed results.

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References

1. UNESCO. COVID-19 Educational Disruption and Response. 2020. Available online: https://en.unesco.org/covid19 (accessed on 30 July 2020).
2. UNESCO. Distance Learning Solutions. 2020. Available online: https://en.unesco.org/covid19/educationresponse/solutions (accessed on 7 September 2020).
3. Clark, R.C.; Mayer, R.E. *E-Learning and the Science of Instruction*, 4th ed.; Wiley: Hoboken, NJ, USA, 2016.
4. Nagrale, P. Advantages and Disadvantages of Distance Education. 2013. Available online: https://surejob.in/advantages-anddisadvantages-of-distance-education.html (accessed on 10 September 2020).
5. Brown, C. Advantages and Disadvantages of Distance Learning. 2017. Available online: https://www.eztalks.com/elearning/advantages-and-disadvantages-of-distance-learning.html (accessed on 10 September 2020).
6. Bijeesh, N.A. Advantages and Disadvantages of Distance Learning. 2017. Available online: http://www.indiaeducation.net/online-education/articles/advantages-and-disadvantages-of-distancelearning.html (accessed on 10 September 2020).
7. Eyles, A.; Gibbons, S.; Montebruno, P. Covid-19 school shutdowns: What will they do to our children's education? A CEP Covid-19 analysis Briefing note No. 001. 2020. Available online: http://cep.lse.ac.uk/pubs/download/cepcovid-19-001.pdf (accessed on 10 September 2020).
8. Montacute, R. Social Mobility and COVID-19. 2020. Available online: https://www.suttontrust.com/wpcontent/uploads/2020/04/COVID-19-and-Social-Mobility-1.pdf (accessed on 30 July 2020).
9. Hodges, C.; Moore, S.; Lockee, B.; Trust, T.; Bond, A. The difference between emergency remote teaching and online learning. *Educ. Rev.* **2020**. Available online: https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning (accessed on 10 September 2020).
10. Rudnick, A. Social, psychological, and philosophical reflections on pandemics and beyond. *Societies* **2020**, *10*, 42. [CrossRef]
11. United Nations. Policy Brief: Education during COVID-19 and Beyond. 2020. Available online: https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf (accessed on 4 October 2020).
12. UNESCO. Distance Learning Strategies in Response to COVID-19 School Closures. 2020. Available online: https://unesdoc.unesco.org/ark:/48223/pf0000373305 (accessed on 30 July 2020).
13. UNESCO. Education for Sustainable Development Goals: Learning Objectives. 2020. Available online: https://unesdoc.unesco.org/ark:/48223/pf0000247444 (accessed on 4 October 2020).
14. HubIT. Available online: https://www.hubit-project.eu/ (accessed on 7 September 2020).
15. Vlachopoulos, D. COVID-19: Threat or opportunity for online education? *High. Learn. Res. Commun.* **2020**, *10*, 2. [CrossRef]
16. Outhwaite, L. *Inequalities in Resources in the Home Learning Environment (No. 2)*; Centre for Education Policy and Equalising Opportunities, UCL Institute of Education: London, UK, 2020.
17. Bol, T. Inequality in home schooling during the corona crisis in the Netherlands. *First Results LISS Panel* **2020**. [CrossRef]
18. Thomas, M.S.; Rogers, C. Education, the science of learning, and the COVID-19 crisis. *Prospects* **2020**, *1*. [CrossRef] [PubMed]
19. Doyle, O. COVID-19: Exacerbating Educational Inequalities? 2020. Available online: http://publicpolicy.ie/papers/covid-19-exacerbating-educational-inequalities/ (accessed on 30 July 2020).
20. Owusu-Fordjour, C.; Koomson, C.K.; Hanson, D. The impact of Covid-19 on learning-the perspective of the Ghanaian student. *Eur. J. Educ. Stud.* **2020**. [CrossRef]
21. Yusuf, B.N. Are we prepared enough? A case study of challenges in online learning in a private higher learning institution during the Covid-19 outbreaks. *Adv. Soc. Sci. Res. J.* **2020**, *7*, 205–212. [CrossRef]
22. Omodan, B.I. The vindication of decoloniality and the reality of COVID-19 as an emergency of unknown in rural universities. *Int. J. Sociol. Educ.* **2020**. [CrossRef]
23. Mukhtar, K.; Javed, K.; Arooj, M.; Sethi, A. Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pak. J. Med. Sci.* **2020**, 36. [CrossRef] [PubMed]

24. Verawardina, U.; Asnur, L.; Lubis, A.L.; Hendriyani, Y.; Ramadhani, D.; Dewi, I.P.; Sriwahyuni, T. Reviewing online learning facing the Covid-19 outbreak. *J. Talent Dev. Excell.* **2020**, *12*, 385–392.
25. Bernard, R.M.; Abrami, P.C.; Borokhovski, E.; Wade, C.A.; Tamim, R.M.; Surkes, M.A.; Bethel, E.C. A meta-analysis of three types of interaction treatments in distance education. *Rev. Educ. Res.* **2009**, *79*, 1243–1289. [CrossRef]
26. Eder, R.B. The remoteness of remote learning. *J. Interdiscip. Stud. Educ.* **2020**, *9*, 168–171. [CrossRef]
27. UNESCO. COVID-19 Educational Disruption and Response. 2020. Available online: https://en.unesco.org/covid19/educationresponse (accessed on 7 September 2020).
28. Drane, C.; Vernon, L.; O'Shea, S. *The Impact of 'Learning at Home' on the Educational Outcomes of Vulnerable Children in Australia during the COVID-19 Pandemic*; Literature Review Prepared by the National Centre for Student Equity in Higher Education; Curtin University: Bentley, Australia, 2020.
29. Campbell, M.K.; Meier, A.; Carr, C.; Enga, Z.; James, A.S.; Reedy, J.; Zheng, B. Health behavior changes after colon cancer: A comparison of findings from face-to-face and on-line focus groups. *Fam. Community Health* **2001**, *24*, 88–103. [CrossRef] [PubMed]
30. HubIT. Distance Learning and Emergency Remote Teaching: Opportunities and Criticalities at the Time of the Worldwide Health Emergency—SPEAK OUT! Available online: https://www.hubit-project.eu/forum/topic/distance-learning-and-emergency-remote-teaching-opportunities-and-criticalities-at-the-time-of-the-worldwide-health-emergency-speak-out (accessed on 7 September 2020).
31. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
32. Istituto Nazionale di Statistica (ISTAT). Available online: https://www.istat.it/it/archivio/240949 (accessed on 7 September 2020).
33. European Commission (EC). Responsible Research & Innovation. 2020. Available online: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation (accessed on 10 September 2020).
34. Republic of Croatia, Ministry of Science and Education. Coronavirus—Organisation of distance teaching and learning in Croatia. Available online: https://mzo.gov.hr/news/coronavirusorganisation-of-distance-teaching-and-learning-in-croatia/3634 (accessed on 7 September 2020).
35. D'Andrea, A.; Ferri, F.; Fortunati De Luca, L.; Guzzo, T. Mobile devices to support advanced forms of e-learning. In *Multimodal Human Computer Interaction and Pervasive Services*; Grifoni, P., Ed.; IGI Global: Hershey, PA, USA, 2009; pp. 389–407. [CrossRef]
36. Garrison, D.R.; Vaughan, N.D. *Blended Learning in Higher Education: Framework, Principles, and Guidelines*; Jossey-Bass: San Francisco, CA, USA, 2008. [CrossRef]
37. Guzzo, T.; Grifoni, P.; Ferri, F. Social aspects and Web 2.0 challenges in blended learning. In *Blended Learning Environments for Adults: Evaluations and Frameworks*; Anastasiades, P.S., Ed.; IGI Global: Hershey, PA, USA, 2012; pp. 35–49. [CrossRef]
38. Gervasio, F. Didattica a Distanza, Alcuni Suggerimenti per Svilupparla al Meglio. *Orizzontescuola.it*. 2020. Available online: https://www.orizzontescuola.it/didattica-a-distanza-alcuni-suggerimenti-per-svilupparla-al-meglio/ (accessed on 7 October 2020).
39. Stentella, M. La Scuola e la Sfida Della Didattica a Distanza: Cosa Possiamo Imparare Dall'emergenza Covid-19. *FPA Digital 360*. 2020. Available online: https://www.forumpa.it/temi-verticali/scuola-istruzione-ricerca/la-scuola-e-la-sfida-della-didattica-a-distanza-cosa-possiamo-imparare-dallemergenza-covid-19/ (accessed on 7 September 2020).
40. European Commission (EC). The Digital Economy and Society Index (DESI). 2020. Available online: https://ec.europa.eu/digital-single-market/en/desi (accessed on 7 September 2020).
41. Ministry of Education, University and Research (MIUR). L'inclusione via Web. 2020. Available online: https://www.istruzione.it/coronavirus/didattica-a-distanza_inclusione-via-web.html (accessed on 10 September 2020).

42. Rivoltella, P.C. Scuola. Tecnologia più condivisione: Così si può fare buon e-learning. *Avvenire.it*. 2020. Available online: https://www.avvenire.it/opinioni/pagine/tecnologia-pi-condivisione-cos-si-pu-fare-buon-elearning (accessed on 7 September 2020).
43. Ministry of Education, University and Research (MIUR). Scuola, Presentate le Linee Guida per Settembre. 2020. Available online: https://www.miur.gov.it/web/guest/-/scuola-presentate-le-linee-guida-per-settembre (accessed on 7 September 2020).