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ONLINE LEARNING AND EMERGENCY REMOTE TEACHING: OPPORTUNITIES AND CHALLENGES

ANIL KUMAR KHANDEY
Assistant Professor
Dr. C. V. Raman University,
Kargi Road Kota, Bilaspur
(CG) INDIA

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: *onlinelearning; emergency remote teaching; technological challenges; pedagogical challenges; social challenges*

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, which has declared that online learning can help stop the spread of the virus by avoiding direct interactions between people. UNESCO 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. 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. 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. 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 . Indeed, on the one side, there is the main objective of safeguarding health, while on the other side the aforementioned problems are emerging.

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. 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. There is some evidence that school closures can produce significant losses in educational achievement, in particular for disadvantaged students.

The advantages and limitations of using online learning in medical and dental institutes in Pakistan have been analysed. 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. In Portugal, hard-copy teaching resources have been promptly delivered to children's homes thanks to a partnership between schools and post office services.

- TECHNOLOGICAL CHALLENGES : Access to infrastructure such as technological devices and an Internet connection. Teachers' lack of skills in using technology. Need for training and guidelines for teachers and students

- PEDAGOGICAL CHALLENGES: Need for teaching materials in the form of interactive multimedia (images, animations, educational games) to engage and maintain students' motivation. Lack of student feedback and evaluation system.

- SOCIAL CHALLENGES : Lack of suitable home learning environment to study and parents' support.

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.

Results of the Forum Discussion:

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.

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.

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.

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.

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.

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 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. In the future, when normal education activities will be able to resume, a balance between learning at school and online learning should be established.

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. 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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