

Short Communication

Challenges for the educational system during lockdowns: A possible new framework for teaching and learning for the near future

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The COVID-19 outbreak has heightened several challenges in higher education. In this paper, we focus on the use of technology, teaching methodologies and literacy skills. The challenges relating to the use of technology in higher education include the digital divide created by unequal access to the internet in many countries. In terms of teaching methodologies, distance learning may be faced with additional challenges in student evaluation or in the learning process itself, as in some educational disciplines face-to-face teaching is essential. Literacy skills with an emphasis on digital skills will be a part of the solution going forward if lock-downs persist. Finally, librarians are in an excellent position to engage with their communities by teaching literacy skills and digital skills in effectively using technology, which will be a much-needed part of the educational system as new teaching methodologies emerge.

Keywords: COVID-19 education, higher education, teaching methodologies, literacy skills

Everything has changed so quickly. In a matter of days citizens around the world were put in lockdown in their homes to protect themselves from the COVID-19 outbreak. Consequently, as in other economic sectors, the educational sector has been seriously affected both for compulsory education and non-compulsory education as universities had to quickly improvise distance learning. Consequently, it is likely that new teaching strategies, methodologies and pedagogies will emerge and remain in the near future as there is not yet any medical solution for COVID-19.

This has heightened several challenges for students and professors that need to be addressed and improved. These challenges are technology, teaching methodologies and literacy skills among others

First, *the use of technology*. Technology has likely been one of the most important factors for education during the lockdown. Internet connections, equipment and cloud software have been the main nexus of online education. However, according to the United Nations Education Agency half of all students worldwide (830 million learners) do not have access to a computer and more than 40% have no Internet access at home (UN Education Agency, 2020). This creates not only a digital divide but also a threat to education.

Internet connections are not equally developed in all countries nor in all areas of the same country. For instance, China (where the COVID-19 outbreak first started) had to face some issues caused by the weakness of the online infrastructure, the inexperience of teachers or the information gap (Zhang et al., 2020) when the Education Ministry launched the program “*Ensuring learning undisrupted when classes are disrupted*” (UNESCO, 2020a)

All of a sudden household internet connections were not just being used for online shopping; they became central for learning, online teaching teleworking and other professional activities. According to Eurostat between 2013 and 2018 about 86% of households in most European countries had internet access, with broadband being the most common form of internet connection (EUROSTAT, 2018). Nevertheless, at the beginning of the outbreak parts of the population had no internet connection and in rural areas with broadband coverage only half of households (52.3%) had access to high-speed next generation services (European Commission, 2019).

In Europe schools and universities started to use videoconferencing systems to try to follow the same daily teaching activities as before. However, the use of systems such as Zoom, Jitsi Meet Big Blue Button, Google Meet, Microsoft Teams, and Blackboard Collaborate requires a high use of data and not everyone can connect. This is especially problematic in rural areas thus creating three categories of citizens: those who are well connected with high speed broadband with video connection options, those with slow connections and a third category of those who have no connections at all for reasons such as their economic or other personal situation. Consequently, professors had three different scenarios before them and at the same time these professors themselves could fall into one of the three categories.

To solve part of the problem for students with no access to computers or to internet connection in countries like England the Department for Education provided laptops or tablets for some 15-years-olds without access to a computer (Coughlan, 2020) In Spain universities like Universidade de Vigo (Universidade de Vigo, 2020), Jaume I (UNESCO, 2020b) or the University of Barcelona offered to lend laptops or internet connectivity (Universitat de Barcelona, 2020) to help students access online learning

Lockdown conditions have forced many professors and students to rapidly update their technology. However, many did not have technologically appropriate conditions for working from home. For instance, they may have had outdated laptops, connectivity issues or needed to share equipment with other family members. This could present risks not only with personal work material but also risks to personal data or, for professors, the risk of involuntarily access to a student’s personal data.

In terms of *teaching methodologies* and having a broader vision of the educational system relatively few universities in the world were prepared for the switch to distance learning during the COVID-19 outbreak without interrupting their teaching activities. Distance learning universities had an advantage compared to traditional face-to-face universities. For instance, at The Open University¹ whose main educational

¹<http://www.open.ac.uk/>.

core is distance learning, professors and students are well-versed in online learning; and distance universities have their own platforms and well-established learning methodologies.

During this pandemic it is likely that new educational methodologies and pedagogies may emerge. Since it appears that face-to-face courses will be affected in the long-term, instructors could consider looking for ways to improve what they teach and how knowledge can be better transmitted. It is certainly true that some courses are more difficult to teach than others. For instance, in disciplines like chemistry or medicine it is necessary to use a laboratory and other learning structures. In education, future teachers need to go into schools to learn how to teach. Finally, in library and information science future professionals like librarians, archivists or curators need to go to historic sites to learn how to develop their skills dealing with collections or special collections.

One of the consequences of the lockdown has been the widespread use of videoconferencing as a substitute for face-to-face courses. While this likely works best with smaller groups of 15 to 25 students, it is not practical nor manageable with bigger groups. University professors with 80 students have had difficulties in teaching unless most of the teaching was done via lectures. In addition, most videoconferencing software does not show everyone in the session due to technical limitations. Students also may not show themselves for a variety of reasons, such as a lack of intimacy, a lack of privacy where they are living, being in a small place where family is around them or simply, they do not feel comfortable. This can also be a problem for the professors to identify the students enrolled in their courses, although not a software security issue.

Continuous videoconferencing on a regular basis can lead to screen tiredness for professors, who may need to look for alternatives.

Another question to consider is evaluation. In Europe, the end of the semester is near and evaluation is at the centre of the debate. Early on, most professors used electronic proctoring systems, which allowed them to monitor student behaviour during a remote test, but which may be at odds with the GDPR and have been forbidden by some universities. However, universities must prevent exam fraud by students. This a controversial point and the Conferencia de Rectores de las Universidades Españolas (CRUE²), which includes the provosts of Spanish universities, has published a data protection guide that discusses the challenges of evaluation (García et al., 2020).

Because of this controversy, new evaluation systems are needed to ensure not only continuous learning but also to clearly identify students' identities in order to prevent unethical behaviour. No system is perfect, but the evaluation system may need to be modified for different types of courses.

At this point it is possible to observe that not only has educational quality been affected but learning quality too. Since it seems that COVID-19 will persist for some

²<https://crue.org>.

time, *literacy skills* can be part of the solution for professors as well for students. At different educational levels, techniques for improving literacy skills are also different. Because of that, in K-12 students, social annotation would assist in improving language capabilities (Zhu et al., 2020) or in undergraduate classes, annotation discussion can improve reading comprehension skills.

At the same time, digital literacy is on the forefront because as there are no face-to-face courses professors need to be up-to-date with technology (Zhou & Wolstencroft, 2020) they will need to apply technology to the new teaching format. Technologies are now an integral part of the teaching and learning process for both professors and students. This could mean that technology should be an integral part of teaching methodologies as well as the curriculum of future professors. Students also have a need for digital literacy to be a part of their learning program (Boeren et al., 2020). Contrary to what it might seem, using an email account or mobile phones does not mean that users have digital literacy skills. A mobile phone, for instance, presents a wide range of challenges such as how to correctly use podcasting and video recording. It also presents other concerns such as copyright on materials and understanding the use of search terms in specific engines and finding and evaluating information. To foster their digital literacy skills, students need to use a wide range of technologies creatively, critically, and collaboratively. (Hague & Payton, 2011). Understanding and communicating knowledge with technology is the key to digital literacy. Librarians will have the opportunity to engage with and teach both professors and students.

To conclude, the population needs access to technology in order to gain access to learning and education. New teaching methodologies and evaluation assessments will likely emerge from the lockdown and digital literacy will need to be part of the educational system for both professors and students. Finally, other literacy skills will need to be adapted to this new situation.

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