

# Higher education beyond Covid-19: What do teachers need when moving to online education

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### Abstract

The Covid-19 pandemic caused major upheaval of education across all levels. Schools, colleges, and higher education institutes closed and had to move to online delivery of content and teaching almost overnight. In the context of the Erasmus+ DigiTel Pro project we performed a rapid literature review to discover how the Covid-19 pandemic impacted higher education with a focus on teachers and students and what teachers' needs are post-Covid when higher education moves to online education.

It is obvious that the overnight switch imposed some challenges and problems. Immediate response was to make learning material available online and look for solutions to provide online lectures. Although students appreciated the effort in the attempts to continue education, after time some objections arose both by teaching staff and by students as quality was not as used to be. Moving to online education entails more than quickly providing content online and making use of commercial conferencing software. This was dubbed as 'remote emergency teaching' as an indication that the quality of this education is not as it should be. Some of the negative feelings and perceptions might be due to being inexperienced with digital and online education, pedagogies and didactics and lack of suitable learning environments and supporting technology and infrastructure.

Many teachers felt overpowered by the abrupt change and experienced an increase in workload and change in their role as teacher having to provide mental and psychological support to students due to the crisis situation. Teachers did not have the proper technical resources, tools and internet access. More importantly, teachers reported not being equipped for online teaching and felt that they lack the skills and competences to develop new learning material suitable for online delivery. While there was not sufficient time to adjust instructional design and pedagogy, teachers tried to find alternatives for the interaction with students. Similarly, students wellbeing was affected. Students also report lack of facilities at home, such as a proper place to study, access to a computer for schoolwork and sufficient internet access. While solutions were found for online delivery of learning material and lectures, several other processes were discontinued. Many institutions had difficulty in taking exams and providing assessment; some institutions even completely stopped the exams, other institutions resorted to some form of online assessment.

Not all was perceived as negative though, because the pandemic illustrated the need and provided opportunities to move forward. We already know a lot about various forms of online delivery of education, be that in hybrid, blended or fully online and distance education. The various EU and national policies on digital

society and digital education support the further need of digitalisation of higher education. The literature indicated directions to take to support teachers: continued teacher professionalisation for digital education; educational models for online education; and more support for diversity, inclusion and accessibility. We provide some suggestions what these directions entails.

**Keywords:** covid19, digitalisation of education, teacher professionalisation.

## 1. Introduction

The Covid-19 pandemic caused a major disruption to the educational system. Many schools, vocational and higher education institutions were forced to close their buildings and had to switch immediately to online provision of education. For most educational institutions this caused a major disruption of all educational processes. During the lockdowns periods, educational institutions had no choice other than to go fully online. However, it is not likely that campus-based higher education institutions will convert and transform their education to be fully online. It is much more likely that they will continue face-to-face education and combine that with various forms of online delivery of course components and synchronous and asynchronous online teaching and tutoring processes. Even those changes will require that teaching and support staff as well as students need to be prepared for online, blended, and hybrid education.

In the context of the Erasmus+ DigiTelPro project, we performed a rapid literature review on teachers' needs when moving to fully or partly online education. The focus of this literature review lies with teachers in higher education. Because students' experiences and needs are also influenced by online education, we also report on students' experiences during the Covid-19 pandemic.

### Digital education

Many of the reviewed publications use the term online education without being specific about its meaning, other than that some form of online delivery is involved. *Digital education* might be a more fitting term for education based on educational technology (e.g., (Siemens et al., 2015; The Quality Assurance Agency for Higher Education, 2020)). Digital education includes several forms of education where at least part of the education and learning takes place online, meaning through the use of the Internet, such as:

- synchronous hybrid learning: based on settings that have in common that both on-site or 'here' students and remote or 'there' students are simultaneously included;
- blended learning: based on a course design with a deliberate combination of online and offline learning activities;
- online and distance learning: based on a course design with a continuous physical separation between teacher and learner, synchronously and asynchronously

All these forms have in common that at least part of the education, both teaching and learning, is provided through an online mode. The particulars of an online delivery mode require that courses are redesigned and students supported with learning designs and pedagogical models that support and promote online teaching and learning. This aspect is where the focus of teacher professionalisation will have to be.

## 2. Methodology

We performed a rapid literature review on a variety of resources, such as national surveys, (peer-reviewed) journal articles, reports and documents that were collected in several phases. In September 2021, we started with a list of publications already gathered for the DigiTelPro project. It further included literature found by (a) keyword searches in Google Scholar and renowned databases like EBSCO's ERIC and PsycINFO and Clarivate's

Emerging Sources Citation Index and Social Science Citation Index using terms 'covid\*' OR 'pandemic' AND 'higher education', (b) backward and forward searches in/via databases and sources (i.e., 'snowballing'), and (c) targeted notifications of journal updates. Next, project partners added resources to this list they deemed relevant. This resulted in a list of 193 sources. From October 2021- March 2022 we selected relevant sources and gathered information about type of publication, peer review, methodology, participants, discipline and country and topic addressed. While writing the review, we looked for resources reporting on later phases of the Covid-19 pandemic.

The review included 60 resources. The selection consisted of 30 journal articles and 19 reports. It was not always possible to determine if publications had been peer-reviewed, 36 publications were peer-reviewed. About half of the publications reported on results obtained through surveys; others employed reviews, mixed-methods or empirical studies. Participants were students (11), teachers (10), students and staff (7), staff (varying from academics, teachers to supporting staff and management) (11).

### **3. Results**

The first impression seems to be one of major upheaval, negative impact and experiences. The lockdowns required an almost overnight switch to online education that left little to no room for pedagogical adjustments. Some have dubbed this as *remote emergency teaching*: rapidly providing content online, but lacking in teaching presence and accommodating students' needs that transgressed those of immediate learning processes (Bozkurt & Sharma, 2020; Hodges et al., 2020). Institutions, staff, teachers and students faced many challenges following the disruptive nature of the Covid-19 pandemic. However, some report about the opportunities for higher education to move forward towards digitalisation of higher education.

We will present some of the findings, experiences and perspectives in the following paragraphs.

#### **3.1 Teachers' perspectives**

Many teachers are trained in and/or have experience in classroom teaching and lack the expertise for online teaching. Nevertheless, they put in an enormous effort in looking for solutions to continue with their courses and find alternative approaches to what usually would take place in a classroom setting. In general, teachers managed to find ways to provide learning material online and substitute classroom teaching with online lectures or recorded lectures. They struggled more with suitable pedagogical scenarios and maintaining interaction with students. Despite their efforts, teachers who had use new tools experienced feelings of insecurity and did not feel competent enough, did not want to use new tools at all, or felt they did not get sufficient training and support in using new tools, experienced an increased workload (Cutri et al., 2020; Johnson, 2020; Johnson, 2021; Marinoni et al., 2020; Scherer et al., 2021)). Teachers' attitude towards technology and situational factors such as previous experience influenced their expectations and actions.

#### **3.2 Students' perspectives**

Although students did acknowledge the effort in bringing education online, they were less positive about the quality of the education (e.g., (Brink et al., 2021; Hofer et al., 2021; Oliveira et al., 2021; Phillips, 2021)). They experienced problems with motivation, engagement, concentration; they missed the physical interactions and felt lonely, suffered ill-health and emotional problems (Aristeidou & Cross, 2021; Beardsley et al., 2021; Brink et al., 2021; Dascalu et al., 2021; Jamalpur et al., 2021; Oliveira et al., 2021). Problems were aggravated by financial problems and other socio-economic factors. The Covid-19 pandemic highlighted and increased the differences caused by socio-economic factors and increased the digital divide.

Context and manner of implementation seemed to impact students' experiences and perspectives as shown by the conflicting results. Some studies report that students did not want to continue with online education, while other studies showed that students would like to keep at least part of the online delivery and pedagogies. Students seemed to like aspects of blended learning, empathic teachers, formative assessments (e.g., (Beardsley et al., 2021; Brink et al., 2021; Dascalu et al., 2021; Jamalpur et al., 2021; Meijer, 2021; Oliveira et al., 2021)).

The pandemic also invaded the privacy of the home situation. Families now live and work together 24/7, having to share spaces and roles, conducting activities at home they usually do elsewhere (e.g., job, hobby, or sport). Often, parents and children have to juggle for space, sharing space and devices, often not even having a suitable device like laptops for every individual and having to resort to the use of smartphones, or lack sufficient internet bandwidth (Di Gesú & González, 2020; Ferri et al., 2020; Hofer et al., 2021; Watermeyer et al., 2021).

#### **4. Conclusions**

The reviewed publications made clear that students and teachers struggled to maintain social aspects, interaction and communication. The pandemic highlighted the digital divide, further disadvantaged certain groups, and indicated several aspects that are usually taken for granted such as access to devices and infrastructure and a place to work and study.

*Didactical perspective:* While technology for online education was generally available at universities, many organisations did not adapt their instructional and pedagogical models accordingly to overcome shortcomings of technology while benefitting from its advantages. Given time constraints many universities simply tried to transfer their existing lectures into online lectures.

*Social aspects:* Consequently, students felt isolated and left alone. Social aspects of teacher-student interaction and student-student interaction fell short, leading to decreased motivation and increased risks of dropout and failure.

*Learning situation at home:* The home situation for students and staff differed significantly; some did not have separate rooms to have proper learning or teaching conditions. In addition, the technological equipment available to students and staff varied significantly, leading to disadvantages for students with lesser quality devices or poor internet connections.

To better prepare universities for similar situations in the future, we see the following main directions as important steps towards resilient higher education.

- Adaptation of educational models towards more online education.
- Teacher professionalization towards online education.
- Inclusion and support for disadvantaged learners.

Digital delivery is only one aspect of digital education. For digital education to become effective, efficient and enjoyable a learning space needs to evolve that supports the teaching processes and promotes the learning processes. The learner and the learning process is put central, and that both staff and students have to change roles and adapt to this new form of teaching and learning. Teachers have to get used to new pedagogical and didactical approaches and use digital resources to the best possible outcomes. Students having to develop skills and competences to study in online, blended or hybrid settings (Bygstad et al., 2022; Goodyear, 2021; OECD, 2020; Vincent-Lancrin, 2022).

Online education includes both high quality content and relies on effective learning designs, learning scenarios and pedagogies that are aligned with the learning objectives. Technology itself can play only a minor role and should provide meaningful affordances to stimulate learning activities. The choice of technology should be aligned with the objectives and embedded in pedagogies and didactics. Several of the studies and meta-analyses indicate the use of innovative pedagogies such as inquiry-based learning and collaborative learning (Zhang et al., 2022) that rely on innovative technologies. When applied properly these pedagogies and technologies can have beneficial effects on student engagement, promoting feeling of presence and inclusion (Logemann et al., 2022).

Important for a teacher professional development programme to become and remain effective is not to focus on content only. Professionalization should address the teachers' needs, cater for their process of change and motivation, provide sufficient support from policy and management (e.g. considering workload), facilitate learning strategies and disseminate not only knowledge, but also skills and attitudes for various forms of online teaching and learning (e.g., (Gogus, 2021; Philipsen et al., 2019; Schildkamp et al., 2021)). This includes creating a culture of presence, interaction and community, supporting each other, building a learning community and paying catering for teachers' perspectives and perceptions.

The pandemic highlighted a variety of factors that are relevant, even when not immediately apparent as part of online education. Conditions and factors like student readiness, home and family life, access not only to tools, platforms, devices, but also to safe and secure places to study and work. More than in classroom situations, staff need to pay attention to student wellbeing and need to learn how to notice signals.

## 5. References

- Aristeidou, M., & Cross, S. (2021). Disrupted distance learning: the impact of Covid-19 on study habits of distance learning university students. *Open Learning: The Journal of Open, Distance and e-Learning*, 36(3), 263-282. 10.1080/02680513.2021.1973400
- Beardsley, M., Albó, L., Aragón, P., & Hernández-Leo, D. (2021). Emergency education effects on teacher abilities and motivation to use digital technologies. *British Journal of Educational Technology*, 52(4), 1455-1477. <https://doi.org/10.1111/bjet.13101>
- Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education*, 15(1), i-vi. <https://doi.org/10.5281/zenodo.3778083>
- Brink, M., Broek, A. v. d., & Ramakers, C. (2021). *Ervaringen van studenten met onderwijs en toetsen op afstand tijdens corona*. ResearchNed Nijmegen. <https://www.researchned.nl/2021/02/digitaal-studeren-tijdens-corona/?type=project>
- Bygstad, B., Øvrelid, E., Ludvigsen, S., & Dæhlen, M. (2022). From dual digitalization to digital learning space: Exploring the digital transformation of higher education. *Computers & Education*, 182, Article 104463. <https://doi.org/10.1016/j.compedu.2022.104463>
- Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: transitioning to online teaching during the COVID-19 pandemic. *European Journal of Teacher Education*, 43(4), 523-541. 10.1080/02619768.2020.1815702
- Dascalu, M.-D., Ruseti, S., Dascalu, M., McNamara, D. S., Carabas, M., Rebedea, T., & Trausan-Matu, S. (2021). Before and during COVID-19: A Cohesion Network Analysis of students' online participation in Moodle courses. *Computers in Human Behavior*, 121, Article 106780. <https://doi.org/10.1016/j.chb.2021.106780>
- Di Gesú, M. G., & González, M. F. (2020). The imposed online learning and teaching during COVID-19 times. In M. G. Di Gesú & M. F. González (Eds.), *Cultural views on online learning in higher education: A seemingly borderless class* (Vol. 13, pp. 189-201). Springer International Publishing. [https://doi.org/10.1007/978-3-030-63157-4\\_11](https://doi.org/10.1007/978-3-030-63157-4_11)

- Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations. *Societies*, 10(4), Article 86. <https://doi.org/10.3390/soc10040086>
- Gogus, A. (2021). Shifting to digital: adoption and diffusion. *Educational Technology Research and Development*, 69(1), 11-16. 10.1007/s11423-020-09862-6
- Goodyear, P. (2021). Navigating difficult waters in a digital era: Technology, uncertainty and the objects of informal lifelong learning. *British Journal of Educational Technology*, 52(4), 1594-1611. 10.1111/bjet.13107
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Hofer, S. I., Nistor, N., & Scheibenzuber, C. (2021). Online teaching and learning in higher education: Lessons learned in crisis situations. *Computers in Human Behavior*, 121, Article 106789. <https://doi.org/10.1016/j.chb.2021.106789>
- Jamalpur, B., Kafila, Chythanya, K. R., & Kumar, K. S. (2021). A comprehensive overview of online education – Impact on engineering students during COVID-19. *Materials Today: Proceedings*. <https://doi.org/10.1016/j.matpr.2021.01.749>
- Johnson, N. (2020). *Digital Learning in Canadian Higher Education in 2020: National Report*. Canadian Digital Learning Research Association. <http://www.cdlnra-acrfl.ca/publications/>
- Johnson, N., Seaman, J., & Veletsianos, G. (2021). *Teaching during a pandemic: Spring Transition, Fall Continuation, Winter Evaluation*. B. V. Analytics. <https://www.bayviewanalytics.com/reports/teachingduringapandemic.pdf>
- Logemann, M., Aritz, J., Cardon, P., Swartz, S., Elhaddaoui, T., Getchell, K., Fleischmann, C., Helens-Hart, R., Li, X., Palmer-Silveira, Juan C., Ruiz-Garrido, M., Springer, S., & Stapp, J. (2022). Standing strong amid a pandemic: How a global online team project stands up to the public health crisis. *British Journal of Educational Technology*. <https://doi.org/10.1111/bjet.13189>
- Marinoni, G., Land, H. v. t., & Jensen, T. (2020). *The impact of COVID-19 on higher education around the world. IAU Global survey report*. International Association of Universities. <https://www.iau-aiu.net/IAU-Global-Survey-on-the-Impact-of-COVID-19-on-Higher-Education-around-the>
- Meijer, C. (2021, 17 March 2021 ). 10 elementen van online onderwijs die studenten willen behouden. *Surf Communities*.
- OECD. (2020). *The potential of online learning for adults: Early lessons from the COVID-19 crisis* (OECD Policy Responses to Coronavirus (COVID-19), Issue. OECD. <https://www.oecd.org/coronavirus/policy-responses/the-potential-of-online-learning-for-adults-early-lessons-from-the-covid-19-crisis-ee040002/>
- Oliveira, G., Grenha Teixeira, J., Torres, A., & Morais, C. (2021). An exploratory study on the emergency remote education experience of higher education students and teachers during the COVID-19 pandemic. *British Journal of Educational Technology*, 52(4), 1357-1376. <https://doi.org/10.1111/bjet.13112>
- Philipsen, B., Tondeur, J., Pareja Roblin, N., Vanslambrouck, S., & Zhu, C. (2019). Improving teacher professional development for online and blended learning: a systematic meta-aggregative review. *Educational Technology Research and Development*, 67(5), 1145-1174. 10.1007/s11423-019-09645-8
- Phillips, H. N. (2021). Re-imagining higher education: A cohort of teachers' experiences to face the 'new normal' during COVID19. *International Journal of Educational Research Open*, 2, Article 100069. <https://doi.org/10.1016/j.ijedro.2021.100069>
- Scherer, R., Howard, S. K., Tondeur, J., & Siddiq, F. (2021). Profiling teachers' readiness for online teaching and learning in higher education: Who's ready? *Computers in Human Behavior*, 118, 106675. <https://doi.org/10.1016/j.chb.2020.106675>
- Schildkamp, K., Otter, D. H.-d., Beek, M. t., Uerz, D., & Horvers, A. (2021). *Building blocks for effective lecturer professional development in higher education aimed at educational innovation with IT*. <https://www.versnellingsplan.nl/en/Kennisbank/building-blocks-for-effective-professional-development-2-0/>
- Siemens, G., Gasevic, D., & Dawson, S. (2015). *Preparing for the digital university: a review of the history and current state of distance, blended, and online learning*.

- The Quality Assurance Agency for Higher Education. (2020). *Building a taxonomy for digital learning*. QAA. <https://www.qaa.ac.uk/docs/qaa/guidance/building-a-taxonomy-for-digital-learning.pdf>
- Vincent-Lancrin, S. (2022). *How Learning Continued during the COVID-19 Pandemic : Global Lessons from Initiatives to Support Learners and Teachers*. <https://doi.org/10.1787/bbeca162-en>
- Watermeyer, R., Crick, T., Knight, C., & Goodall, J. (2021). COVID-19 and digital disruption in UK universities: afflictions and affordances of emergency online migration. *Higher Education*, 81(3), 623-641. <https://doi.org/10.1007/s10734-020-00561-y>
- Zhang, L., Carter Jr., R. A., Qian, X., Yang, S., Rujimora, J., & Wen, S. (2022). Academia's responses to crisis: A bibliometric analysis of literature on online learning in higher education during COVID-19. *British Journal of Educational Technology*, n/a(n/a). <https://doi.org/10.1111/bjet.13191>

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