



A RETURN TO NORMALITY OR UNCERTAINTY AFTER COVID-19 FOR THE E-LEARNING ETHICAL ENVIRONMENT

Nuno Silva¹ & Isabel Alvarez²

¹ Universidade Lusíada de Lisboa

² ISTECS, Lisboa, Autonomia TechLab COMEGI

¹ nsas@lis.ulusiada.pt, ORCID 0000-0003-0157-0710

² alvarez@edu.ulusiada.pt, ORCID 0000-0003-4381-6328

Abstract: *The coronavirus (COVID-19) pandemic global health crisis is having a profound impact, not only on people’s lives – but how they learn, work and live. Educators were forced to shift to an online mode of teaching overnight and have adopted Emergency Remote Teaching through Online Learning (ERT-OL) using digital tools and online resources. Also educators had to deal with digital inequities by putting in extra work and shifting their mindsets. There are concerns that the impact of this health crisis will worsen inequities in learning outcomes for students from minority backgrounds. But learning had to continue. In these uncertain times, much had to be done so that students could learn, develop skills, and build on the knowledge they have acquired. The expected reopening of educational institutions will be another challenge, although still with many operating procedures put in place. There will be a need to define the resources that have been found beneficial, assess needs for the future, innovate and implement transparency in alternative educational systems and truthfulness in assessment strategies. This paper, following a systematic literature review aims to provide a comprehensive study on the COVID-19 pandemic emergency on the Portuguese educational system and analyse the way forward for a return to normality considering the uncertainty in a more equitable and ethical e-learning environment.*

Keywords: COVID-19; e-learning; ethics; equity; transparency; truthfulness.

INTRODUCTION

The unexpected COVID-19 pandemic spread worldwide in early 2020, affecting almost all countries and territories. Social distancing and restrictive movement policies have significantly affected traditional educational practices (Pokhrel & Chhetri, 2021). Like in other countries worldwide, the educational system in Portugal (el-

elementary and secondary schools and universities) has been severely impacted due to the pandemic situation as it was built around physical schools (Muchacho et al., 2021). In elementary and secondary schools, the main constraints caused by the pandemic were during confinement in the last two school years – from 16th March 2020 up to the end of that school year and again between January and April 2021. When students could return to schools they were concentrated in “bubbles”, delayed circuits and alternate timetables, with outsider study visits being cancelled. The majority of students in universities found no difficulty in adhering to online learning and gave good feed-back about the transition. However, they said that they missed social contact with their colleagues. Schools and universities also had to deal not only with online learning done in an emergency transition but also with all administrative activities being done remotely.

The online learning, done in such a quick way without any previous preparation became a panacea for this unprecedented global pandemic, despite the challenges and new opportunities posed to both educators and the students. They had to transit from traditional face-to-face to online learning from one week to the other with no other alternatives available (Pokhrel et al., 2021). The COVID-19 pandemic that was experienced demanded the solution of other problems experienced in schools – learning difficulties, failure, drop-out, special education – and has become a challenge for the political power, the leadership, teachers, students and parents. The transition of a teacher from face to face to online classes, is a process of building progressive (Alves & Cabral, 2021) trust and analysis towards learning. The uncertainties experienced towards the online emergent learning atmosphere produced insecurity. It is in the adaptive and innovative behaviour of the teacher wherein lies the strength of promoting quality in education.

If in developed countries, mainly in Europe and North America, this was a measure that allowed the introduction of technology in daily classes, for a large devastating number of students from developing countries it meant an abrupt interruption in learning. According to the United Nations, confinement has affected around 1.6 billion children and young adults in more than 190 countries (OECD report, 2020) and UNICEF estimates that there was not any remote learning for at least 463 million students (Unicef report, 2021).

This pandemic sheds a stark light on an emerging truth—education as we know it is over, and we must think of “school” in deeply different ways. However, we may question if an online classroom (Zoom, Teams, Google Meet, Cisco Webex or through any other platform) is a place where everyone is respected and transparent in their communication? Are we ensuring students privacy? This electronic approach to learning raises questions about trustworthiness and transparency (Castro-Gil & Correa, 2021). Transparency builds trust. The main need to be transparent and truthful is the commitment with all stakeholders and their compromise with international regulations (e.g. European General Data Protection Report- GDPR). By being truthful, it requires being honest and practicing transparency to all e-learning activities as honesty is the quality of being truthful and free from deceit, which is essential in human relations and should be rewarded.

RESEARCH METHODOLOGY

In order to conceive a better understanding on the unexpected COVID-19 worldwide pandemic effects on learning, a systematic literature review (Okoli, 2015) was carried out to identify, select and critically researched articles were considered more relevant to this subject.

1. THE COVID-19 PANDEMIC EMERGENCY

1.1. ERT – Emergency Remote Teaching

The educational systems, whether in elementary or secondary schools and universities have adopted “Emergency Remote Teaching” (ERT) – an unplanned and quick shift to a new form of teaching – as the main form of learning through the various online platforms (Seabra et al., 2021; Ezra et al., 2021) which have played an important role during this pandemic, helping the institutions to facilitate student learning during the quarantine periods that led to the closure of universities and schools (Subedi et al., 2020).

1.2. Rapid development and the offering of new tools

In Portugal, in the first year of the pandemic everyone was caught off-guard and the priority was to distribute computers to the student households where there was no equipment, and internet to the places without a network connection. The main concern was to keep all primary and secondary students with a minimum connection to the schools and teachers and rehearse a remote learning scenario, which had never been tested before within this dimension. Public and private organisations provided laptops and internet access to some students from disadvantaged backgrounds with little access to such tools and who required further attention and support. When this was not possible, in co-operation with the Post Office Services and the National Scouts Group, a mechanism was implemented allowing students who lived far from schools, and who had no computer or without access to the Internet, to receive hard copies of lessons and tasks from their teachers. Deliveries of homework/assignments on paper to students and their subsequent collection and return to the teachers were also organised (OCDE, 2020).

The virtual classroom platforms like videoconferencing (Google Hangouts Meet, Zoom, Microsoft Teams and Cisco WebEx) and customizable cloud-based learning management platforms such as Moodle and Classe365 were increasingly used.

2. AN E-LEARNING ETHICAL ENVIRONMENT

Accuracy, fairness, impartiality and respect are the main ethical principles applied to information processed by computers. It can also be considered that privacy, responsibility, copyrights and welfare may likewise be affected (Turilli et al., 2009). The use of computerised information needs to be regulated and the ethical principles of copyright, anonymity, freedom of expression and privacy are required.

2.1. The online environment

Accessibility, affordability, flexibility and educational policy are the most identified challenges in e-learning. However, many countries face huge issues without a reliable Internet connection and access to digital devices (Pokhrel & Chhetri, 2021).

Online learning requires different approaches to students of different age groups (Doucet et al., 2020). Online education depends on a suitable pedagogy and the expertise of information and communications technology (ICT) for both educators and learners (Petri, 2020).

School closures have a real impact on all students, but mainly on the most vulnerable ones who are likely to face additional barriers related to the current COVID-19 pandemic being more at risk of increased vulnerability and who are less likely to receive the support and extra services they need (OECD, 2020).

School closures and confinement measures mean more families have been relying on technology and digital solutions to keep children engaged in learning, entertained and connected to the outside world, but not all children have the necessary knowledge, skills and resources to keep themselves safe online. In Portugal, elementary and secondary students from rural villages may have illiterate parents. The majority of these students may not have access to computers or smartphones or TV at home in addition to poor Internet connectivity. Furthermore, as a result of the lockdowns, part of the population lost their jobs or their usual income. Continuous access to the internet is expensive and not affordable for poorer families and face-to-face online classes consume more data packages (OECD, 2020).

TPACK is probably the most referred proposal for technological adoption, due to the clarity with which it explains the need for three powerful dimensions: content, pedagogy and technology (Mishra & Koehler, 2006). Also, the potential use of games, simulators, the internet of things, learning robotics or artificial intelligence, all have the capacity of arousing strong and motivational student involvement.

2.2. Limited educational services for the most vulnerable

In Portugal, approximately 800 schools across the country hosted children from elementary schools whose parents worked in essential services, as well as provided food support to students from disadvantaged economic backgrounds, which meant that most of the time the only meal they had during the day was at school. Schools also reinforced their articulation with the Resource Centres for Inclusion, in order to ensure the continuity of their specialised support services for students (OECD, 2020). Concerning the students with special needs, mainly from elementary schools, the role of parents is crucial in online learning (Ayda, 2020); to help on general or specific study questions, the special education teacher is online to clarify any concerns or questions from parents.

2.3. Equitable and inclusive access to digital resources

Educational equity means that all students, independently of their personal and social identifiers, have equal access to the educational resources and opportunities they need (Ezra et al., 2021). The shift of the Emergency Remote Teaching during

the pandemic brought a decrease in educational equity. So, the implementation of e-learning technology must provide an equitable and inclusive environment with transparency and truthfulness (Silva et al., 2020).

In most of the cases during the pandemic, both parents were also at home teleworking. This brought the problem of the number of computers available for all the members of the family and the issues around physical workspaces.

The important thing is to guarantee that learners participate and learn in the actual context. But how can this be guaranteed? Some recent studies show a lack of readiness felt by the students, mainly those with greater socio-economic difficulties concerning their digital skills for an online model (Alipio, 2020; Basilaia & Kvavadze, 2020). The alternative is an ethics of care which directs our attention to the need for responsiveness in relationships (paying attention, listening and responding) (Prinsloo & Slade, 2017; Martel et al., 2021).

2.4. Assessment

Student assessments were carried out online, with a lot of trial and error, uncertainty and confusion among the teachers and students. The approach adopted to conduct online examinations varied, mainly depending on whether it was an elementary or secondary school or university and considering the expertise among the teachers. Appropriate measures to check plagiarism have yet to be investigated and put in practice in many institutions mainly due to the emergency of the moment (Pokhrel, 2021). Secure, remote testing can acquire better credibility if supported by systems that block the use of the computer which may or may not have an associated system that films the student and at the end, produces a report detailing the suspected cases for the teacher. In the same way, control of plagiarism may be incorporated in some LMSs.

3. RETURN TO NORMALITY

3.1. Traditional assessment methods

With this emergent and unexpected situation of online learning, the education institutions need to evaluate the impact of their remote teaching on the learning outcomes attained.

However, to do a secure and valid online assessment is a difficult task. There are several tools available that claim to avoid plagiarism and that do not violate privacy. An example of this is the software Proctorio – which is a Google Chrome extension that monitors students taking exams online (Kaup et al., 2020). However, these so called e-Proctoring systems lead to a range of potential ethical concerns, mainly if facial recognition or artificial systems to detect potential malfeasance are employed (Gordon et al., 2021).

3.2. Government policy to established procedures

The pandemic was a serious public health crisis and the economic and social problems associated with it, being primarily based on evidence that government interfer-

ence is crucial, particularly to restrain or reduce growing social inequalities (Costa, A.F., 2020).

Probably the major test for the Portuguese government among the most important challenges created by COVID-19 was how to adapt the actual system of education built around physical schools (OECD 2020). The COVID-19 pandemic has provided all stakeholders with an opportunity to pave the way for introducing digital learning and it is generally recognized that there is a need to innovate and implement alternative educational and assessment strategies (Dhawan, 2020).

4. UNCERTAINTY AFTER COVID-19 – DISCUSSION

The purpose of this study is to explore the ethical issues concerning the transition from face-to-face to online learning. It is important to understand how this pandemic has reinforced and aggravated new and old social inequalities. The people most affected by this crisis are also the most vulnerable from the point of view of social inequalities, those with less social, economic, cultural and symbolic capital (Tavares & Cândido, 2020).

4.1. The Lawful and Political Approach

COVID-19 can bring threats to democracy in general – deterioration of the climate of confidence in governmental institutions, the rise of populism and xenophobic movements in Western Europe – and these risks are particularly high when it is thought that political leaders, whether national or international, “are not up to the job” as population surveys demonstrate (Magalhães, P. et al., 2020). In any case, for the welfare state to fulfil its functions and make a decisive contribution to reducing social inequalities, there are two priorities that have become salient with the current crisis: strengthening the public systems of the welfare state and emphasising their universal nature (Costa, A.F., 2020).

The General Data Protection Regulation of the European Union has merits, but is also very limited given the magnitude of the problem. One of its biggest shortcomings is, precisely, the failure to address some of the most worrying social inequalities involved in the new data concentration or the problems associated with online assessments, webcams, proctoring software, and learning analytics or trustworthiness (Costa, A.F., 2020). The government must also consider whether the several digital platform tools that serve as a substitute to traditional classes are a temporary condition or whether some components need to be adjusted permanently (Basilaiia et al., 2020).

4.2. Beyond law – an ethical culture

Several questions arise regarding the ethical implications concerning online education. If problems are not solved by a law, then in what aspects can an ethical culture be created concerning quality and access and what is the role of transparency and trust? Is an online classroom through any platform like Zoom, MS Teams, Cisco Webex or Google Meet, a place where everyone is respected and transparent in communication? By using webcams, how can privacy be assured to students and teachers (Gordon et al, 2021)? In fact, this pandemic shines a stark light on an emerging truth–

education as we know it is over, and we must think of learning in different ways. Education must be reimagined concerning today's context and tomorrow's needs and needs to be rethought from the perspectives of the children and not of the curriculum. The existent technical problems must also be considered. The use of technology in online learning can be optimized, but some technologies are still difficult to access with errors in downloading, installation, login problems, audio and video problems, and so on. Frequently, students find online teaching boring and unattractive. Quality has to be improved with teachers needing to show their best efforts. E-learning courses have to be creative in design, centred on the learner, facilitate communication among students and work in groups (Partlow & Gibbs, 2003).

4.3. Awareness of Ethical Issues in new or updated e-Learning Systems

Which ethical reply can we expect from e-learning stakeholders (suppliers, government, etc.)? Will there be new applications appealing to the ethical awareness of promoting transparency and trust (Taddeo & Floridi, 2017)? Google's lack of transparency with schools became evident when districts demanded clarity from the company (Krutka et al., 2021). Ensuring digital equity is crucial in this difficult time. Not all teachers and students have access to the proper digital tools and steps must be taken to reduce the digital divide. It can be recognized that the best practices for online home-schooling are yet to be explored (Petrie, 2020). However, ethics and equity will always prevail in online education (Gallavan et al., 2017). According to Vermeulen et al. (2020), the capacity for self-questioning and innovative behaviour are necessary attributes to practice an education of the future, in developing a 'knowledge society'. Innovative capacity is the cornerstone of this process as it corresponds to a multidimensional process, associated with the dynamics of change, transformation, creation and novelty (Henriques et al., 2020, p. 144).

CONCLUSION

The coronavirus (COVID-19) pandemic global health crisis is having a profound impact, not only on people's lives but how they learn, work and live. Like in other countries worldwide, the educational system in Portugal (elementary and secondary schools and universities) has been severely impacted due to the pandemic situation as it was built around physical schools (Muchacho et al., 2021). Educators were forced to shift to an online mode of teaching overnight and have adopted Emergency Remote Teaching through Online Learning (ERT-OL) using digital tools and online resources. The shift to online learning, done in such a quick way without any previous preparation became a panacea for this unprecedented global pandemic, despite the challenges and new opportunities posed to both educators and students.

There are concerns that the impact of this health crisis will worsen inequities in learning outcomes for students from minority backgrounds. There are threats to democracy with the deterioration of the climate of confidence in governmental institutions, and the rise of populism and xenophobic movements in Western Europe. But e-learning had to continue in extremely democratic conditions. This pandemic sheds a stark light on an emerging truth—education as we know it is over, and we must think

of “school” in deeply different ways. The expected reopening of educational institutions will be another challenge although there have been many operating procedures put in place. Government interference is crucial particularly to restrain or reduce growing social inequalities. The major test for the Portuguese government is how to adapt the actual system of education built around physical schools. There will be a need to define the resources that have been found beneficial, assess needs for the future, innovate and implement transparency in alternative educational systems and truthfulness in assessment strategies considering the uncertainty in a more equitable and ethical e-learning environment, to practice an ethics of care.

REFERENCES

- Alipio, M. (2020). *Education during COVID-19 era: Are learners in a less economically developed country ready for e-learning?* Kiel, Hamburg: ZBW – Leibniz Information Centre for Economics. <https://doi.org/10.2139/ssrn.3586311>.
- Alves, J.M. & Cabral, I. (2021). *Ensino Remoto de Emergência – Perspetivas Pedagógicas para a Ação*. Serviços de Apoio à Melhoria da Educação, Faculdade de Educação e Psicologia. Porto. ISBN 978-989-53098-0-1. Retrieved from [https://www.fep.porto.ucp.pt/sites/default/files/files/FEP/SAME/Livro_Ensino_Remoto_de_Emerge%CC%82ncia_VF_mar21\(1\).pdf](https://www.fep.porto.ucp.pt/sites/default/files/files/FEP/SAME/Livro_Ensino_Remoto_de_Emerge%CC%82ncia_VF_mar21(1).pdf).
- Basilaia, G. & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. *Pedagogical Research*, 5(4), em0060. <https://doi.org/10.29333/pr/7937>.
- Castro-Gil, R., Correa, D. (2021). Transparency in previous literature reviews about blended learning in higher education. *Educ Inf Technol*, 26, 3399–3426. <https://doi.org/10.1007/s10639-020-10406-x>.
- Costa, A.F. (2020). Desigualdades Sociais e Pandemia. In Carmo, R.M., Tavares, I., & Candido, A.F. (Eds.). *Um Olhar Sociológico sobre a crise COVID-19 em Livro*, Observatório das Desigualdades, CIES-ISCTE. <https://doi.org/10.15847/CIESOD2020COVID-19>.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crises. *Journal of Educational Technology*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>.
- Doucet, A., Netolicky, D., Timmers, K., & Tuscano, F.J. (2020). Thinking about pedagogy in an unfolding pandemic (An Independent Report on Approaches to Distance Learning during COVID-19 School Closure). *Work of Education International and UNESCO*. Retrieved from <https://www.oitcinterfor.org/node/7809>.
- Ezra, O., Cohen, A., Bronshtein, A., Gabbay, H., & Baruth, O. (2021). Equity factors during the COVID-19 pandemic: Difficulties in emergency remote teaching (ert) through online learning. *Education and Information Technologies*, 26, 7657–7681. <https://doi.org/10.1007/s10639-021-10632-x>.
- Gallavan, N.P., Huffman, S., & Shaw, E. (2017). Ensuring Ethic and Equity with Classroom Assessments and Mobile Technology: Advancing Online Education, IGI Global. <https://doi.org/10.4018/978-1-5225-2122-8.ch011>.

- Gordon, D., Gibson, P., Tierney, B., O'Sullivan, D., & Stavarakakis, I. (2021). You must have your webcam on for the entire duration of the examination: The Trade-Off Between the Integrity of On-Line Assessments and the Privacy Rights of Students. Proceedings of the ETHICOMP 2021. Logroño, La Rioja, Spain June 30 – July 2, 2021. ISBN 978-84-09-28672-0.
- Henriques, S., Abelha, M., Seabra, F., & Mouraz, A. (2020). Avaliação externa de escolas e inovação educativa. In J.A. Pacheco, J.C. Morgado, & J.R. Sousa (Eds.). Avaliação institucional e inspeção: perspetivas teórico-conceituais (1a, pp. 121–140). Porto Editora. ISBN 978-972-0-34919-4.
- Karasel, N., Bastas, M., Altinay, F., Altinay, Z., & Dagli, G. (2020). Distance Education for Students with Special Needs in Primary Schools in the Period of COVID-19 Epidemic Propósitos y Representaciones, 8(3), e587. <https://doi.org/10.20511/pyr2020.v8n3.587>.
- Kaup, S., Jain, R., Shivalli, S., Pandey, S., & Kaup, S. (2020). Sustaining academics during COVID-19 pandemic. The role of online teaching-learning. *Indian Journal of Ophthalmology*, 8(6), 1220–1221. https://doi.org/10.4103/ijo.IJO_1241_20.
- Krutka, D.G., Smits, R.M., & Wilhelm, T.A. (2021). Don't Be Evil: Should We Use Google in Schools? *TechTrends*, 65, 421–431. <https://doi.org/10.1007/s11528-021-00599-4>.
- Magalhães, P., Lopes, R.C., & Silva, P.A. (2020). O impacto Social da Pandemia, Estudo ICS/ ISCTE Covid-19 – Dados da 2ª Vaga, Junho 2020. Retrieved from https://www.iscte-iul.pt/assets/files/2020/06/23/1592905686858_O_Impacto_Social_da_Pandemia_2a_vaga.pdf.
- Martel, S., Rourke, S., Wade, S., & Watters, M. (2021). Simulating “Normalcy” in a Global Pandemic: Synchronous e-Learning and the Ethics of Care in Teaching. *PS: Political Science & Politics*, 54(1), 173–175. <https://doi.org/10.1017/S1049096520001493>.
- Mishra, P., & Koehler, M. (2006). Technological Pedagogical Content Knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>.
- Muchacho, L., Vilhena, C., & Valadas, S.T. (2021). COVID-19 e desigualdades escolares: Uma análise da investigação sobre os efeitos do encerramento das escolas no processo de ensino e aprendizagem. *Educação, Sociedade e Culturas*, 59 (Jul. 2021). <https://doi.org/10.24840/esc.vi59.342>.
- OECD, (2020). The impact of COVID-19 on student equity and inclusion: supporting vulnerable students during school closures and school re-openings. *OECD Policy Responses to Coronavirus (COVID-19)*. OECD Publishing, Paris. <https://doi.org/10.1787/d593b5c8-en>.
- Okoli, C. (2015). A Guide to Conducting a Standalone Systematic Literature Review. *Communications of the Association for Information Systems*, 37. <https://doi.org/10.17705/ICAIS.03743>.
- Partlow, K.M., Gibbs, W.J. (2003). Indicators of constructivist principles in internet-based courses. *J. Comput. High. Educ.*, 14, 68. <https://doi.org/10.1007/BF02940939>.
- Petrie, C., Aladin, K., Ranjan, P., Javangwe, R., Gilliland, D., Tuominen, S., & Lasse, L. (2020). Spotlight: Quality education for all during COVID-19 crisis (HunDrED Research Report #011). Organisation for Economic Co-operation and Develop-

- ment. Retrieved from <https://learningportal.iiep.unesco.org/en/library/spotlight-quality-education-for-all-during-covid-19-crisis>.
- Pokhrel, S. & Chhetri, R. (2021). A Literature Review on Impact of COVID-19 Pandemic on Teaching and Learning, *Higher Education for the Future* 8(1) 133–141. <https://doi.org/10.1177/2347631120983481>.
- Prinsloo, P. & Slade, S. (2017). Big data, higher education and learning analytics: Beyond justice, towards an ethics of care. In Daniel B. Kei (Ed.). *Big data and learning analytics in higher education* (pp. 109–124). Cham, Switzerland: Springer. https://doi.org/10.1007/978-3-319-06520-5_8.
- Seabra, F., Teixeira, A., Abelha, M., & Aires, L. (2021). Emergency Remote Teaching and Learning in Portugal: Preschool to Secondary School Teachers' Perceptions. *Educ. Sci.* 2021, 11, 349. <https://doi.org/10.3390/educsci11070349>.
- Silva, N., Alvarez, I., & Pinto, P. (2020). E-learning implementation – from action to equity in an international higher education institution. In E. Smyrnova-Trybulska (Ed.). *Innovative Educational Technologies, Tools and Methods for E-learning* Scientific “E-learning” Series, 12, Katowice–Cieszyn: STUDIO NOA for University of Silesia (pp. 290–304). <https://doi.org/10.34916/el.2020.12.25>.
- Subedi, S., Nayaju, S., Subedi, S., Shah, S.K., & Shah, J.M. (2020). Impact of e-learning during COVID-19 pandemic among nursing students and teachers of Nepal. *International Journal of Science and Healthcare Research*, 5(3), 9. <https://doi.org/10.52403/ijshr.20200710>.
- Taddeo, M. & Floridi, L. (2017). The moral responsibilities of online service providers. *The Responsibilities of Online Service Providers*. Springer, pp. 13–42. https://doi.org/10.1007/978-3-319-47852-4_2.
- Tavares, I., & Candido, A.F. (2020). Balanço e Perspetivas de Futuro – O impacto da COVID-19 e a (Re)produção das desigualdades social”. In Carmo, R.M., Tavares, I., & Candido, A.F. (Eds.). *Um Olhar Sociológico sobre a crise COVID-19 em Livro, Observatório das Desigualdades*, CIES-ISCTE. <https://doi.org/10.15847/CIESOD2020COVID-19>.
- Turilli, M. & Floridi, L. (2009). The ethics of information transparency. *Ethics and Information Technology*, 11(2), 105–112. <https://doi.org/10.1007/s10676-009-9187-9>.
- UNICEF, (2021). Report on COVID-19 and School Closures – One year of education disruption. <https://doi.org/10.13140/RG.2.2.13528.42245>. Retrieved from <https://data.unicef.org/covid-19-and-children/>.
- Vermeulen, M., Kreijns, K., & Evers, A. (2020). Transformational leadership, leader-member exchange and school learning climate: impact on teacher' innovative behaviour in the Netherlands. *Educational Management Administration & Leadership Journal*, 48(5), 1–20. <https://doi.org/10.1177/1741143220932582>.