Special Section of the *British Journal of Educational Technology (BJET)*

Online and Blended Learning: Contexts and Conditions for Education in an Emergency

Guest editor(s):

Dr. Christine Greenhow, College of Education, Michigan State University, United States
Dr. Cathy Lewin, Education and Social Research Institute, Manchester Metropolitan University, United Kingdom

In a world of global health emergencies and increasing displacement, education has undergone a rapid transition to online and blended forms of learning in many countries. The pandemic has triggered a re-imagining of "school" and "university" and what these should look like, especially regarding the role of technology, the internet and social media along the formal and informal learning continuum (Greenhow & Lewin, 2016). Given that virus surges may lead to future temporary shutdowns, educational system shifts in this past year suggest leaders and educators must plan for changes in the division of labor, fluid pedagogical practices, and flexible learning and work environments that incorporate technology (Greenhow, Lewin, & Staudt Willet, 2020). Perhaps never before has the work of the educational technology research and practice community been so vital.

Looking back over 50 years, the BJET Editorial Team has called for "theory, design frameworks, critical perspectives, and honest reports of less-than-perfect technology implementations…" (Hennessy, Mavrikis, Girvan, Price, & Winters, 2019, p. 6), which may be especially important in times of global crisis. We are at an unprecedented moment in the history of educational technology where the field's efforts to engage honestly, comprehensively, (self-)critically and rapidly are crucial to providing research-based insights on the contexts and conditions of the emergency transition to online and blended learning around the world and useful recommendations for the path forward. This special section contributes in timely and significant ways to understanding and responding to global health and education emergencies. At the time of writing over 152 million people in 222 countries and territories have been infected with the novel coronavirus (COVID-19) (World Health Organization, 2021; Worldometer, 2021); this special section includes research from the most infected countries, including the United Kingdom, United States, India, Italy, Spain, Germany, Canada, Israel, Brazil, Portugal, China and Australia. Such work is important to understanding how theories and approaches to online education play out in national systems of education as well as important commonalities and differences as we look across the papers and country contexts. The disruption of national systems of education and the rapid transition to online education provides a unique and rare case in which to examine and reflect on the field's technology-mediated learning theories-in-action in an educational emergency. The papers in this collection address how education systems responded to the rapid transition to online education around the world.

Higher education responses
First, we present research on the system response in higher education (papers 1 - 4). These studies present staff and student experiences which highlight the need for more planning and

preparation for educating in an emergency. Assessment issues are foregrounded, both summative and formative, whilst practical advice to address such challenges is offered.

A powerful and engaging phenomenological study of how staff at higher education institutions in Canada responded to the pivot to emergency remote teaching is presented by VanLeeuwen, Veletsianos, Johnson and Belikov (2021). The themes that emerge depict feelings of being overwhelmed, exhaustion, sadness and loss, which will resonate with many academics.

Educators worldwide reconsidered assessment strategies in light of COVID-19 when physical distancing requirements rendered in-person examinations infeasible. Linden and Gonzalez (2021) examine the effectiveness of using Zoom online meetings for high-stakes final exam invigilation with 1728 university students across 24 subjects. They note no significant difference in exam mark distribution, advancing knowledge of student-centered approaches to remote exam invigilation.

Online learning environments can curate learners' digital traces, producing data to inform instructional decision-making. Surveying instructors across 108 higher education institutions in 35 countries, Usher, Hershkovitz, and Forkosh-Baruch (2021) report instructors' perceived access to, interest in, and willingness to make decisions based on learners' data when shifting to online course delivery. Without face-to-face cues, instructors are inclined to make data-driven decisions, but lack preparation.

Oliveira, Teixeira, Torres and Morais (2021) present an analysis of student and staff perspectives of emergency remote education in Portugal and Brazil. Drawing on the theory of mediated learning, they highlight the need to improve both remote assessment processes and preparation for the impact on workload, motivation and well-being.

K-12 system responses: schools, leaders, teachers, students, and parents
Next, we present articles on how K-12 school systems — e.g., school, leadership, teachers, students and parents — responded to the rapid transition to online learning amidst the COVID-19 pandemic (papers 5 - 14). Like the higher education context, these studies present staff and students' experiences of the transition to online education, including facilitating and challenging factors, the impacts of change, and necessity of better preparedness. However, unlike the higher education studies, calls for community and learning networks within and beyond the school system were highlighted in the face of uncertainty, demand for expertise and perspectives beyond the locale, and the traversal of home-and-school environments. The collection concludes with a retrospective: a systematic review of the type of emergencies that have occurred since 2010 and the technology-mediated remote teaching strategies used to continue K-12 learning in the emergency situation.

Teachers' perceptions of a mini-MOOC and of the challenges they faced are presented by Boltz, Yadav, Dillman and Robertson (2021). Teachers perceived that the MOOC, presenting 'bite-size content', impacted positively on their ability to teach online. The most significant challenges were student engagement and communication, and students' insufficient access to technology.

Adopting an ecological perspective, Manca and Delfino (2021) analyze one Italian school system's transition from onsite to emergency remote education. They focus on stakeholders' experience of continuity and change when the school's system is (re)configured. Teachers, students and their families report pre-existing digital competence and close school community collaboration as key factors facilitating rapid adjustment to the emergency.

School leaders and teachers turn to informal learning networks on social media for emergency support in the next three papers. Rehm, Moukarzel, Daly, and del Fresno's (2021) investigate the network structures among school leaders on Twitter, the type of information shared, and differences identified when comparing a nationwide and localized sample. Their findings provide valuable insights for policy makers interested in who is moving what types of resources as part of the emerging governance approach on social media.

Greenhow, Staudt Willet and Galvin (2021) investigate teachers' use of Twitter to ask questions. Teachers sought and offered support to their peers, enabling them to discover new ideas and rethink their pedagogy. The flexibility, adaptability, immediacy and wide reach of this approach was perceived to impact positively on practice.

Beardsley, Albó, Aragón, and Hernández-Leo (2021) examined Spanish school teachers' use of digital technologies at the pandemic's onset compared to one year later. They report improvement in teachers' perceived proficiency in using technology for lesson preparation, teaching, assessment, and communication. Teachers' advice-seeking on social media also shifted from immediate instructional needs to advice-seeking about professional development and digital content creation.

Two papers examine typically under-resourced areas in India and China. Students' and teachers' experiences of technologies in government schools in India are considered by Charania, Bakshani, Paltiwale, Kaur and Nasreen (2021). Project-based and constructivist learning approaches, modelling webquests for students' and teachers' use of instant messaging supported the switch to remote learning. The importance of professional development for teachers is highlighted and results illustrate how technology can engage students from disadvantaged backgrounds.

Wang, Yang, Li and van Aalst (2021) investigate how the Chinese rural educational system supports students' online learning during the COVID-19 pandemic, especially the factors that influence students' online learning quality. The researchers emphasize that creating a learning community may be especially important for students from rural or migrant schools in China who typically face many barriers to fully participating in online learning.

The educational response to COVID-19 for learners in the early years is the subject of two papers. Hu, Chiu, Leung and Yelland (2021) examined online teaching in early childhood education during COVID-19. Surveying 1,035 educators from 169 preschools they find that most teachers experience difficulty engaging children online and inadequate parental support for learning activities. They suggest online learning communities could connect parents and schools and foster interaction to support educators in addressing children's online learning needs.

Another paper focusing on the early years by Laxton, Cooper and Younie (2021) describes the development of innovative resources to support home education. The resources enabled research-informed knowledge about play-based learning to be shared rapidly with parents via early years educators. The resources were perceived as timely and easily accessible, and adaptable for parents' specific needs.

This section concludes with Compton, Burke, Jordan and Wilson's (2021) systematic review of empirical work on education in emergencies from 2010 to 2020. Following a rigorous, PRISMA selection process, 60 articles were included in the final analysis from 48 countries. The article illuminates the type of emergencies that have occurred in the past decade, the participants involved, subject domain, technologies used, and the types of technology-mediated remote teaching strategies used to continue K-12 learning in the emergency situation. The paper concludes with a set of recommendations for teachers, school leaders, and policy makers on emergency remote education.

Future research agenda and concluding thoughts
The rapid pivot to online teaching as a result of the pandemic put teachers in all educational institutions under huge pressure. Clearly, more should be done to prepare for similar situations that may arise. Looking forward, research should investigate what needs to be in place and what support is required to be able to switch to fully online teaching in the future. Many of the papers in this special section highlight an initial major challenge for teachers in their response to education in an emergency as being how to motivate and engage students to participate in online learning. This is key to ensuring that online learning is inclusive and that no student groups are disadvantaged. Similarly, parents of younger children need more support for home learning and remote online learning. The use of educational technology to support early years' education is an under-researched area. Online resources to support parents have potential to extend reach but consideration should be given to those without access to ensure that parental support is equitable. Many papers in this issue also touch on assessment issues. Educational technology offers new opportunities such as generating data about learners that can inform decision-making and assessment. We need to develop a deeper understanding of how we can harness such data to maximise student success. On the other hand, more work is required to investigate and overcome challenges such as supervision and invigilation.

In order to develop digital pedagogy, whether for the classroom or for remote instruction, teachers and lecturers require continual professional development that is flexible, just-in-time and aligns with their needs. Mini-MOOCs might offer a flexible and reactive format to address this need. Developing a deeper understanding of the role of social media and particularly inquiring discourse, and how this meshes with other professional development pathways, is essential. Furthermore, research on the impact of such engagement on teachers' professional practices through classroom observations would also be beneficial.

As we look across these educational responses to the pandemic, we are reminded that people are embedded in social systems; their ability to rebound in times of trauma, tragedy, threats or stress is influenced by their social supports, or the "multiple dynamic, interacting individual-level systems (e.g., genetic, developmental, neurobiological) which are embedded in larger social systems (e.g., family, cultural, economic, and political systems)" (Southwick et al., 2016, p. 77).

The importance of continuing to resist artificial boundaries (e.g., online/offline; home/school) and direct attention to the overlapping networks and communities within which education -- and educational technology -- are embedded was highlighted in these papers.

Covid-19 has demonstrated that educational institutions need to be better prepared for dealing with pandemics in the future. Despite awareness of the challenges that could be faced during a pandemic by governments prior to 2019, plans were not at the forefront of policy makers' minds and teachers were not prepared. Our field, educational technology, was key to enabling teachers and schools to continue to educate their students. It is difficult to predict what the future holds but educational technology is likely to remain important. Teachers and other key educational stakeholders who had previously resisted educational technology were forced to make use of it. We hope that the lessons learned and lasting impact of teachers' experiences of emergency education will positively impact on teachers' digital pedagogies in the future.

Acknowledgement

References

Beardsley, M., Albo, L., Aragon, P., & Hernandez-Leo, D. (2021). Emergency education effects on teacher abilities and motivation to use digital technologies. *British Journal of Educational Technology.*

Boltz, L., Yadav, A., Dillman, B. & Robertson, C. (2021). Transitioning to remote learning: Lessons from supporting K-12 teachers through a MOOC. *British Journal of Educational Technology.*

Charania, A., Bakshani, U., Paltiwale, S., Kaur, I. & Nasreen, N. (2021). Constructivist Teaching and Learning with Technologies in the COVID-19 Lockdown in Eastern India. *British Journal of Educational Technology.*

Compton, H., Burke, D., Jordan, K., & Wilson, S. W. G. (2021). Learning with technology during emergencies: A systematic review of K-12 educational research. *British Journal of Educational Technology.*

Greenhow, C., Lewin, C., & Staudt Willet, K.B. (2020). Response to Covid-19 across two countries: Critical examination of digital pedagogy adoption. *Technology, Pedagogy and Education.* https://doi.org/10.1080/1475939X.2020.1866654

Greenhow, C. & Lewin, C. (2016). Recrafting formal education: shifting the boundaries of formal and informal learning. *Learning, Media & Technology*, *41*(1), 6-30.

Greenhow, C., Staudt Willet, K. B., & Galvin, S. (2021). Inquiring tweets want to know: #Edchat supports for remote teaching during COVID-19. *British Journal of Educational Technology.*

Hennessy, S., Mavrikis, M., Girvan, C., Price, S., & Winters, N. (2019). BJET Editorial for the 50th Anniversary Volume in 2019: Looking back, reaching forward. *British Journal of Educational Technology*, *50*(1), 5–11. https://doi.org/10.1111/bjet.12731

Hu, X., Chiu, M. M., Leung, W. M. V., & Yelland, N. (2021). Technology integration for young children during COVID-19: Towards future online teaching. *British Journal of Educational Technology*

Laxton, D., Cooper, L. & Younie, S. (2021). Translational Research in Action: The use of technology to disseminate information to parents during the COVID-19 pandemic. *British Journal of Educational Technology.*

Linden, K. & Gonzalez, P. (2021). Zoom invigilated exams: A protocol for rapid adoption to remote examinations. *British Journal of Educational Technology.*

Manca, S., & Delfino, M. (2021). Adapting educational practices in emergency remote education: Continuity and change from a student perspective. *British Journal of Educational Technology.*

Oliveira, G., Teixeira, J.G., 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.*

Rehm, M., Moukarzel, S., Daly, A. J. & del Fresno, M. (2021). Exploring online social networks of school leaders in times of COVID-19. *British Journal of Educational Technology.*

Southwick, S. M., Sippel, L., Krystal, J., Charney, D., Mayes, L., & Pietrzak, R. (2016). Why are some individuals more resilient than others: the role of social support. *World Psychiatry, 15*(1), 77-79.

Usher, M., Hershkovitz, A., & Forkosh-Baruch, A. (2021). From data to actions: Instructors' decision-making based on learners' data in online emergency remote teaching. *British Journal of Educational Technology.*

VanLeeuwen, C., Veletsianos, G., Johnson, O. & Belikov, N. (2021). Never-ending repetitiveness, sadness, loss, and "juggling with a blindfold on:" Lived experiences of Canadian college and university faculty members during the COVID-19 pandemic. *British Journal of Educational Technology.*

Wang, J., Yang, Y., Li, H., & van Aalst, J. (2021). Continuing to teach in a time of crisis: The Chinese rural educational system's response and student satisfaction and social and cognitive presence. *British Journal of Educational Technology.*

World Health Organization (WHO) (2021, May 3). WHO coronavirus disease (COVID-19) dashboard. https://covid19.who.int/

Worldometer (2021, May 3). COVID-19 Coronavirus pandemic worldometer. https://www.worldometers.info/coronavirus/

Guest Editor Biographies

Dr. Christine Greenhow is an Associate professor in Educational Psychology and Educational Technology at Michigan State University in the United States. She studies online education, learning and teaching with social media, the design of technology-mediated learning environments, and changes in scholarship practices with new media. Her most recent book is *Education and Social Media: Toward a Digital Future* published by The MIT Press. Dr. Greenhow earned her doctorate at Harvard University and completed postdoctoral work at the Yale Information Society Project and the University of Minnesota. She is the recipient of several

awards including the Outstanding Post-doctoral Scholar Award from the University of Minnesota, the Early Career Award from the American Educational Research Association's learning and teaching division, and the 2018 Teacher-Scholar Award from Michigan State University. She has guest edited numerous special issues for journals such as the *American Journal of Education*, *Teachers College Record*, *Journal of Educational Computing Research* and *Education* and *Information Technologies* (More information at: http://www.cgreenhow.org and @chrisgreenhow on Twitter).

Dr. Cathy Lewin is Professor of Education at the Education and Social Research Institute, Manchester Metropolitan University. Her research interests include the impact of innovative educational technologies on teachers' pedagogy, the implications of connecting formal and informal learning through technology, and the impact of such changes on learners' experiences, knowledge and skills. She has been an active researcher for over 20 years, contributing to policy and practice through large-scale projects in both the UK and in Europe including ImpaCT2 (1999-2001), ICT Test Bed (2003-2006) and the FP7-funded iTEC (2010-2014). She was editor of Learning, Media and Technology from 2004-2010 and remains on the editorial board. She has also edited special issues for journals including *Computing & Education* and *Education and Information Technologies*.