

Impact of the COVID-19 pandemic on education and clinical training

Since late 2019, the COVID-19 pandemic has forced the world to develop new lifestyles to control the spread of the virus. Education, in general, has been significantly affected by the pandemic. To cope with the changes imposed by the pandemic, universities and education and research institutions had to redesign their curricula and learning strategies to be able to harmonize with the necessary transformations of their education style.¹

At the height of the first wave of infections, restrictions were greatest, resulting in the partial or complete closure of teaching rooms, libraries, and laboratories. Such changes posed significant challenges to learning methods and environments, and left trainees with reduced core skills compared with their colleagues, who had completed their trainings in pre-COVID years. For example, medical and nursing students received limited clinical exposure because of suspension of trainee participation in hospital rounds, whereas graduate and undergraduate science students were left with limited experience of practical laboratory techniques following cessation of laboratory and research activities. Similarly, a switch from in-person classes to virtual sessions brought technical issues and has proven problematic for audience contribution and two-way interactions. Furthermore, direct and regular mentor/mentee exchanges were interrupted because of redeployment of the institutional workforce to manage the rapid increase in COVID-19 patients and COVID-19 related research.

Although these transformations were and are challenging, necessity has driven their adoption. Indeed, uncertainty over the future course of the pandemic means these challenges are likely to continue for longer time. In response, educational communities are rightly looking for guidance to further improve their teaching methods. To provide such guidance, Almarzooq et al. identified four key features of successful virtual learning: integration, collaboration, education, and communication.² Appropriate implementation of these features is expected to result in more effective and sustainable online learning experiences.

After an initially difficult transition period, we are already benefiting from increased online offerings with a tremendous rise in the number of educational sessions. Many online educational platforms have been developed by commercial and nonprofit organizations to serve as valuable sources for educational material. These alternative

learning media offer additional formats and variety to conventional in-person lectures. ISTH webinars, for example, provide a wide range of audience and scholastic content that can be accessed at any time, from anywhere in the world and, importantly, at no additional cost. The advent of national and international hybrid (in-person and virtual) conferences will also make it easier and less costly to attend. Such changes, especially when coupling content provision with social media platforms, further improves educational accessibility and engagement.

However, this substantial increase in opportunities and surge of information can be potentially overwhelming; identifying high-quality, valuable content can be challenging. "Webinar fatigue" is a serious problem that can result in physical and psychological trauma.³ A blurred work-life balance also poses disruption of lifestyles and requires stress management. It is important going forward, as a scientific and medical community, that we become conscious of these negative aspects and be sympathetic when designing educational timetables to mitigate against such detrimental effects.

Finally, the economic impact of the COVID-19 pandemic on education and training should not be underestimated. Although the pandemic initially brought about additional funding opportunities, charity incomes and research expenditures are projected to be reduced for the foreseeable future. Unless preventative actions are taken, this could result in decreased numbers of doctoral students and early career researchers, potentially hindering science and clinical care long after this pandemic passes.

In conclusion, the COVID-19 pandemic has caused rapid and global transformation within education and clinical trainings. Many changes bring along improvement and are likely to stay. The challenge now is to adapt and evolve these new capabilities alongside pre-COVID teaching methods to create accessible, engaging, interactive, and sustainable educational environments. In doing so, we may turn the challenges of today into the opportunities of tomorrow.

Muntadhar Al Moosawi¹ 

Aaron Iding²

Paul Armstrong³ 

Thita Chiasaku⁴ 

Robert Campbell⁵

Caterina Casari⁶ 

For the ISTH Early Career Committee*

*See Appendix 1 for the ISTH Early Career Committee.

Manuscript handled by: David Lillicrap

¹Department of Pathology and Laboratory Medicine, University of British Columbia, Vancouver, BC, Canada

²Department of Biochemistry, Cardiovascular Research Institute Maastricht, Maastricht University, Maastricht, the Netherlands

³Centre for Immunobiology, Blizard Institute, Barts and the London School of Medicine and Dentistry, Queen Mary University, London, UK

⁴Division of Hematology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Bangkok, Thailand

⁵Department of Internal Medicine, Division of General Medicine, Program in Molecular Medicine, University of Utah, Salt Lake City, UT, USA

⁶HITH, UMR_S1176, Institut National de la Santé et de la Recherche Médicale, University Paris-Saclay, Le Kremlin-Bicêtre, France

Correspondence

Muntadhar Al Moosawi, Department of Pathology and Laboratory Medicine, University of British Columbia, Vancouver, BC, Canada.
Email: mmoosawi@student.ubc.ca

ORCID

Muntadhar Al Moosawi  <https://orcid.org/0000-0002-4350-6218>

Paul Armstrong  <https://orcid.org/0000-0003-0904-677X>

Thita Chiasakul  <https://orcid.org/0000-0002-0443-1751>

Caterina Casari  <https://orcid.org/0000-0002-8271-6795>

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APPENDIX 1

ISTH Early Career Committee (2020-2022): ECC Advisor: Claire McLintock, Auckland, New Zealand; ECC Members: Muntadhar Al Moosawi, Vancouver, BC, Canada; Paul Armstrong, London, United Kingdom; Rose Brazilek, Melbourne, Vic, Australia; Robert Campbell, Salt Lake City, UT, United States (Vice-Chair); Caterina Casari, Le Kremlin-Bicetre, France (Chair); Thita Chiasakul, Bangkok, Thailand; Sofija Dunjic Manevski, Belgrade, Serbia; Renee Eslick, Canberra, ACT, Australia; Aaron Iding, Maastricht, the Netherlands; Shrey Kohli, Leipzig, Germany; Lauren Poole, East Lansing, MI, United States; Leslie Skeith, Calgary, AB, Canada.