

9. Chory RM. Enhancing student perceptions of fairness: the relationship between instructor credibility and classroom justice. *Commun Educ.* 2007;56(1):89-105. doi:[10.1080/03634520600994300](https://doi.org/10.1080/03634520600994300)
10. Colbert CY, French JC, Herring ME, Dannefer EF. Fairness: the hidden challenge for competency-based postgraduate medical education programs. *Perspect Med Educ.* 2017;6(5):347-355. doi:[10.1007/s40037-017-0359-8](https://doi.org/10.1007/s40037-017-0359-8)
11. Govaerts M, Van der Vleuten CP. Validity in work-based assessment: expanding our horizons. *Med Educ.* 2013;47(12):1164-1174. doi:[10.1111/medu.12289](https://doi.org/10.1111/medu.12289)
12. Watling CJ. Unfulfilled promise, untapped potential: feedback at the crossroads. *Med Teach.* 2014;36(8):692-697. doi:[10.3109/0142159X.2014.889812](https://doi.org/10.3109/0142159X.2014.889812)
13. Mennin S. Self-organisation, integration and curriculum in the complex world of medical education. *Med Educ.* 2010;44(1):20-30. doi:[10.1111/j.1365-2923.2009.03548.x](https://doi.org/10.1111/j.1365-2923.2009.03548.x)
14. Fraser SW, Greenhalgh T. Coping with complexity: educating for capability. *BMJ.* 2001;323(7316):799-803. doi:[10.1136/bmj.323.7316.799](https://doi.org/10.1136/bmj.323.7316.799)
15. Greenhalgh T, Papoutsi C. Studying complexity in health services research: desperately seeking an overdue paradigm shift. *BMC Med.* 2018;16(1):95. doi:[10.1186/s12916-018-1089-4](https://doi.org/10.1186/s12916-018-1089-4)

**How to cite this article:** Valentine N, Schuwirth L. Using fairness to reconcile tensions between coaching and assessment. *Med Educ.* 2023;57(3):213-216. doi:[10.1111/medu.14968](https://doi.org/10.1111/medu.14968)

DOI:10.1111/medu.14977

## Digital wellbeing: Are educational institutions paying enough attention?

Priyanka Nageswaran<sup>1</sup>  | Kay Leedham-Green<sup>1</sup>  | Harris Nageswaran<sup>2</sup> | Ana V. Madeira Teixeira Baptista<sup>1</sup>

<sup>1</sup>Imperial College School of Medicine, London, UK

<sup>2</sup>Queen Mary University of London, London, UK

### Correspondence

Priyanka Nageswaran, Imperial College School of Medicine, London, UK.  
Email: [priyanka.n@doctors.org.uk](mailto:priyanka.n@doctors.org.uk)

Digital medical education has expanded dramatically over the last decade: a quick search through the literature for terms associated with online education will reveal a roughly six-fold increase in publications over this period with hundreds of educational institutions describing their experiences of using technology to enhance learning. Examples include online learning to more recently, augmented, and virtual reality-based learning.<sup>1-3</sup> The COVID-19 pandemic created a further seismic shift towards digital teaching, learning and assessment as providers of medical education rushed to adapt to lockdowns, patient vulnerabilities, and reduced clinical placements. Technology-enhanced learning remains the current mainstay whereas institutions progressively attempt to find a new normal and adjust to the unpredictable pandemic era by returning to regular practice.<sup>4</sup> At a time where digitalisation is at the forefront of education provision, we recognise that very few articles are discussing the consequences of digital teaching methods on learner and educator wellbeing. Combining our initial scoping search of

terms associated with digital medical education with the term 'wellbeing' revealed less than half a dozen articles that discussed or researched the consequences of digital teaching methods on the wellbeing of clinical learners or teachers.

Digital wellbeing looks at the impact of technologies and digital services on people's mental, physical, and emotional health. Today, learners and educators may be immersed in technology for most of their social, personal, learning and working needs. Younger students, in particular, may have a very active online presence from early childhood. Some may even have conducted most of their social and personal lives through online applications, social media, and gaming. Small and colleagues describe the impacts of technology use on brain health and development. The authors found that frequent use was associated with attention-deficit symptoms, addictive behaviours, lower emotional and social intelligence, and greater social isolation.<sup>5</sup> Rathakrishnan and colleagues found that electronic device addiction increased the risk of poor

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2022 The Authors. *Medical Education* published by Association for the Study of Medical Education and John Wiley & Sons Ltd.

sleep quality and reduced academic performance in university students.<sup>6</sup> The over-use of digital devices is known to have a negative impact on eyesight and increased screen-related eye strain has been reported over the COVID-19 pandemic.<sup>7</sup> Remote working can induce 'technostress', fatigue and anxiety which negatively affect the wellbeing of employees.<sup>8</sup> In our race to innovate and adapt, are we failing to acknowledge the neurogenic, physical, and emotional consequences of technology on both learners and educators, or at least failing to debate or research the potential impacts?

## *Digital wellbeing looks at the impact of technologies and digital services on people's mental, physical, and emotional health.*

The educational literature is full of the benefits of technology-enhanced learning. Technology has transformed the way we connect with education, from greater access to global resources, to flexible collaboration across different platforms and applications. Increasingly, online platforms are being used by learners and educators to facilitate educational events. Medical curricula have always used a wide range of educational strategies depending on purpose, from problem-based learning to clinical shadowing, to multi-professional simulation, to written and practical examinations. The digital learning revolution has meant that almost every type of learning outcome can, generally, be achieved or assessed online. This has meant that students can have full days, or even weeks, of exclusively online education, contributing, perhaps inadvertently, to their 'always-on' culture. Is achieving a healthy equilibrium between education and technology crucial for promoting safe digital wellbeing?

## *Is achieving a healthy equilibrium between education and technology crucial for promoting safe digital wellbeing?*

Aside from the direct impacts of technology on health and wellbeing, is technology always good for learning? This may depend on your perspective of what good education is.<sup>9</sup> Is it about knowledge transfer and good grades, or is it about developing well-rounded

future doctors and nurturing personal growth? We argue that both are important, and in our data-driven world, perhaps we are losing sight of the latter.

Although both teachers and learners generally welcome innovative ways of enhancing learning through technology, perhaps it is time to reflect on the importance of collegiality and socialisation, particularly within early-years medical education, and how these may have been impacted on by the digital revolution.

Conversely, Dost and colleagues describe how medical students may find online teaching less engaging and enjoyable than face-to-face teaching and report several barriers to learning.<sup>10</sup> The barriers included environmental ones such as family distractions, internet connectivity issues and lack of appropriate space. Some of the psychological barriers included a lack of academic motivation, difficulty concentrating, difficulty asking questions, and anxiety. Social factors include a lack of contact with other learners and difficulty interacting meaningfully in small online group activities.<sup>10</sup> By acknowledging the impacts on digital wellbeing, we contend that utilising digital teaching methods should not be solely about delineating innovative styles of education but perhaps we should synchronously be debating the repercussions it bears on wellbeing.

## *Utilising digital teaching methods should not be solely about delineating innovative styles of education but perhaps we should synchronously be debating the repercussions it bears on wellbeing.*

Successfully integrating technology into medical education requires a collaborative approach from all those concerned. A balance between education provision, sustainability and digital wellbeing should be explored when developing new methods of technology-enhanced learning. Feedback on digital teaching methods should seek to question the impact of innovative styles on digital wellbeing. Referring to the four pillars of medical ethics, the responsibility of non-maleficence applies likewise to medical education. We must ensure that we are not inadvertently placing anyone at harm by our enthusiasm for technology. As educators, we have the responsibility to facilitate learning and to innovate, but also to critique our own thinking including the lens through which we judge educational quality.<sup>9</sup> Stakeholders could engage in collaborative reflective practice to evaluate our digitally transformed

curricula from the multiple perspectives of institutions, learners, patients, and educators.

## *Engage in collaborative reflective practice to evaluate our digitally transformed curricula from the multiple perspectives of institutions, learners, patients, and educators.*

Approaching technology-enhanced learning with a collaborative perspective that embraces multiple lenses on the meaning of educational quality, may significantly benefit both learners and educators and perhaps prevent a myriad of adverse effects induced by technology.<sup>5-8,10</sup> We argue that when designing and creating new learning spaces or programmes, the digital wellbeing needs of both educators and learners should be incorporated alongside accessibility and inclusion. A wider exploration of digital wellbeing could benefit all stakeholders and possibly encourage the provision of a safer and more effective learning and teaching environment. More research is needed that fore-fronts conversations with learners and educators to explore the wider impacts of technology-enhanced learning.

*We argue that when designing and creating new learning spaces or programmes, the digital wellbeing needs of both educators and learners should be incorporated alongside accessibility and inclusion.*

### AUTHOR CONTRIBUTIONS

**Priyanka Nageswaran:** Writing - original draft; Writing - review & editing. **Kay Leedham-Green:** Writing - original draft; Writing - review

& editing. **Harris Nageswaran:** Writing - original draft; Writing - review & editing. **Ana V. Madeira Teixeira Baptista:** Writing - original draft; Writing - review & editing.

### ORCID

Priyanka Nageswaran  <https://orcid.org/0000-0002-6608-7263>

Kay Leedham-Green  <https://orcid.org/0000-0002-5010-3257>

### REFERENCES

1. Elshami W, Taha MH, Abuzaid M, Saravanan C, Al Kawas S, Abdalla ME. Satisfaction with online learning in the new normal: perspective of students and faculty at medical and health sciences colleges. *Med Educ Online*. 2021;26(1):1920090. doi:[10.1080/10872981.2021.1920090](https://doi.org/10.1080/10872981.2021.1920090)
2. Dhar P, Rocks T, Samarasinghe RM, Stephenson G, Smith C. Augmented reality in medical education: students' experiences and learning outcomes. *Med Educ Online*. 2021;26(1):1953953. doi:[10.1080/10872981.2021.1953953](https://doi.org/10.1080/10872981.2021.1953953)
3. O'Sullivan DM, Foley R, Proctor K, et al. The use of virtual reality echocardiography in medical Education. *Pediatr Cardiol*. 2021;42(4):723-726. doi:[10.1007/s00246-021-02596-z](https://doi.org/10.1007/s00246-021-02596-z)
4. Education JE. From technology enabled teaching to digitally enhanced learning: a new perspective for HE. JISC; 2022.
5. Small GW, Lee J, Kaufman A, et al. Brain health consequences of digital technology use. *Dialogues Clin Neurosci*. 2020;22(2):179-187. doi:[10.31887/DCNS.2020.22.2/gsmall](https://doi.org/10.31887/DCNS.2020.22.2/gsmall)
6. Rathakrishnan B, Bikar Singh SS, Kamaluddin MR, et al. Smartphone addiction and sleep quality on academic performance of university students: an exploratory research. *Int J Environ Res Public Health*. 2021;18(16):8291. doi:[10.3390/ijerph18168291](https://doi.org/10.3390/ijerph18168291)
7. Alabdulkader B. Effect of digital device use during COVID-19 on digital eye strain. *Clin Exp Optim*. 2021;104(6):698-704. doi:[10.1080/08164622.2021.1878843](https://doi.org/10.1080/08164622.2021.1878843)
8. Singh P, Bala H, Dey BL, Filieri R. Enforced remote working: the impact of digital platform-induced stress and remote working experience on technology exhaustion and subjective wellbeing. *J Bus Res*. 2022;151:269-286. doi:[10.1016/j.jbusres.2022.07.002](https://doi.org/10.1016/j.jbusres.2022.07.002)
9. Pratt DD, Collins JB, Selinger SJ. *Development and use of the teaching perspectives inventory (TPI)*. Seattle Washington: Proceedings of the annual meeting of the American Educational Research Association; 2001.
10. Dost S, Hossain A, Shehab M, Abdelwahed A, Al-Nusair L. Perceptions of medical students towards online teaching during the COVID-19 pandemic: a national cross-sectional survey of 2721 UK medical students. *BMJ Open*. 2020;10(11):e042378. doi:[10.1136/bmjopen-2020-042378](https://doi.org/10.1136/bmjopen-2020-042378)

**How to cite this article:** Nageswaran P, Leedham-Green K, Nageswaran H, Madeira Teixeira Baptista AV. Digital wellbeing: Are educational institutions paying enough attention? *Med Educ*. 2023;57(3):216-218. doi:[10.1111/medu.14977](https://doi.org/10.1111/medu.14977)