



# Evaluating the Transformative Impact of Online Education on Medical Student Learning Outcomes [Response to Letter]

Hessah Alshammari <sup>1</sup>, Sameerah Shaheen<sup>2</sup>, Shima Mahmoud<sup>2</sup>, Amal Al-Rabiah<sup>2</sup>, Khaleel Alyahya <sup>2</sup>

<sup>1</sup>Department of Cardiac Sciences, King Saud University, Riyadh, Saudi Arabia; <sup>2</sup>Department of Anatomy, King Saud University, Riyadh, Saudi Arabia

Correspondence: Hessah Alshammari, Department of Cardiac Sciences, King Saud, University, Riyadh, Saudi Arabia, Email [healshammari@ksu.edu.sa](mailto:healshammari@ksu.edu.sa)

## Dear editor

We sincerely appreciate the thoughtful comments and insights provided by the authors of the Letter to the Editor regarding our study, “Evaluating the Transformative Impact of Online Education on Medical Student Learning Outcomes”. Their recognition of our methodological rigor and statistical approach is greatly valued, and we welcome their engagement with our findings.

The concerns raised about the small number of test questions and the potential for Type II error are valid considerations in educational research. While our study aimed to provide an initial evaluation of lecture-based retention, we acknowledge that a broader set of assessment tools, including end-of-year examinations, could offer a more comprehensive measure of long-term retention. Future studies should indeed incorporate a wider range of assessment strategies to strengthen the validity of knowledge retention analysis.

Additionally, we appreciate the discussion regarding the Hawthorne effect and its potential influence on our findings. While we sought to minimize such biases, we agree that longer-term objective measures, such as performance in subsequent coursework or clinical assessments, would provide further insights into the true impact of online learning.

We also acknowledge the importance of higher-order thinking skills, particularly in clinical training. As suggested, further research into the ability of online platforms to cultivate critical thinking and problem-solving skills—especially in later years of medical education—would be highly valuable. Exploring blended learning approaches could serve as a promising avenue to enhance engagement and comprehension, mitigating some of the challenges associated with fully online education.

Once again, we appreciate the constructive feedback and thoughtful reflections provided in this Letter. We hope that our study contributes to the ongoing discourse on optimizing medical education in the digital era.

## Disclosure

The authors report no conflicts of interest in this communication.

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Advances in Medical Education and Practice 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Advances in Medical Education and Practice editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

### Advances in Medical Education and Practice

**Dovepress**  
Taylor & Francis Group

### Publish your work in this journal

Advances in Medical Education and Practice is an international, peer-reviewed, open access journal that aims to present and publish research on Medical Education covering medical, dental, nursing and allied health care professional education. The journal covers undergraduate education, postgraduate training and continuing medical education including emerging trends and innovative models linking education, research, and health care services. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/advances-in-medical-education-and-practice-journal>

<https://doi.org/10.2147/AMEP.S524848>