

Comparing Knowledge Acquisition and Retention Between Mobile Learning and Traditional Learning in Teaching Respiratory Therapy Students: A Randomized Control Trial [Letter]

Muhammad Haris Ilyas¹, Mahnoor Irfan², Syeda Anum Zahra³

¹School of Medicine, University of Leeds, Leeds, UK; ²St George's, University of London, London, UK; ³Imperial College, School of Medicine, London, UK

Correspondence: Mahnoor Irfan, Email mahnoorirfan048@gmail.com

Dear editor

Upon reviewing Alhamad et al study,¹ we would like to, firstly, express our gratitude for covering the topical issue of mobile learning (m-learning) and its applications in medical education. As UK healthcare professionals and students passionate about medical education, we aim to illuminate this topic from our perspective.

This study aimed to compare the difference in knowledge acquisition and retention between m-learning and traditional learning styles in the context of clinical education for respiratory therapy students. The authors acknowledged a range of studies highlighting the positive impact of m-learning on students' attitude and performance. Although the research cited focused on a range of STEM-related fields, providing a robust justification for this study, little was done to address potential challenges faced by students when adapting to the new m-learning model and possible limitations of m-learning in meeting students' educational needs. One particularly significant challenge reported by Folger et al is the disparity in m-learning proficiency between students and teachers.² The study reports that the recent boom of m-learning in education means that educators are often unable to effectively advise students in their use when facing clinical or technical challenges. This highlights the need for effective training and experience required by educators, in addition to students' perceived attitudes towards m-learning, for it to meaningfully impact clinical education.

Conducted at a single Saudi university, the study included 46 3rd-year respiratory therapy students in fall 2019. The authors acknowledge limited generalizability due to the small sample size, preventing significant conclusions or broader application to other healthcare courses. This elevates the type 1 error risk, potentially falsely rejecting the null hypothesis. To mitigate this, we recommend a larger, diverse sample across academic years and healthcare disciplines.

Another concern relates to the methodology, particularly in measuring study outcomes, which consisted of a single 20 multiple-choice-questions test administered at three different time-points. Whilst we appreciate the reasoning behind this and acknowledge the authors' efforts to reduce subsequent bias, the impact of question memorization on test performance cannot be overlooked as it risks response bias. This impact has also been reported in two large-scale studies by Joncas et al and Applehaus et al where reusing test items significantly reduced their reliability and increased their level of ease.^{3,4} In future studies, we suggest the use of new questions at each time-point which are standardized to be at an equivalent knowledge level and difficulty.

Finally, the use of convenience sampling to acquire participants limits the external validity of the study. Thus, findings cannot be generalized to other populations with characteristics that vary from a readily available population.⁵ Convenience sampling ignores factors eg age, first language, previous degrees and clinical exposure to name a few, all of which could have an effect on knowledge acquisition and retention. Therefore, we suggest employing a probability sampling method to eliminate bias and generate insights that will be widely applicable to other populations.

We sincerely appreciate the authors' insightful contributions to medical education.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Alhamad BR, Agha S. Comparing knowledge acquisition and retention between mobile learning and traditional learning in teaching respiratory therapy students: a randomized control trial. *Adv Med Educ Pract*. 2023;14:333–342. doi:10.2147/AMEP.S390794
2. Folger D, Merenmies J, Sjöberg L, Pyörala E. Hurdles for adopting mobile learning devices at the outset of clinical courses. *BMC Med Educ*. 2021;21(1):594. doi:10.1186/s12909-021-03008-9
3. Joncas SX, St-Onge C, Bourque S, Farand P. Re-using questions in classroom-based assessment: an exploratory study at the undergraduate medical education level. *Perspect Med Educ*. 2018;7(6):373–378. doi:10.1007/S40037-018-0482-1
4. Appelhaus S, Werner S, Grosse P, Kammer JE. Feedback, fairness, and validity: effects of disclosing and reusing multiple-choice questions in medical schools. *Med Educ Online*. 2023;28(1):2143298. doi:10.1080/10872981.2022.2143298
5. Andrade C. Internal, external, and ecological validity in research design, conduct, and evaluation. *Indian J Psychol Med*. 2018;40(5):498–499. doi:10.4103/IJPSYM.IJPSYM_334_18

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

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.S435682>