

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

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## Dear editor

Upon reviewing Alhamad et al study,<sup>1</sup> 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.<sup>2</sup> 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.<sup>3,4</sup> 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.<sup>5</sup> 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.

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