

Use of an Adaptive e-Learning Platform as a Formative Assessment Tool in the Cardiovascular System Course Component of an MBBS Programme [Letter]

This article was published in the following Dove Press journal:
Advances in Medical Education and Practice

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Dear editor

We read with great interest the article by Borges et al¹ on the use of “Firecracker”, an adaptive e-Learning Platform for Formative Assessment. The authors concluded that use of the platform correlated with better academic performance in both final examinations and in-course assessments. Adaptive e-learning highly resonates with us as fifth-year Medical Students at Imperial College London and we wish to share our view on the topic whilst also addressing certain aspects of this paper.

The study correctly emphasises the benefits of an adaptive-spaced learning approach using a system developed by course coordinators. Additionally, we would like to bring the reader’s attention to a study by Palmer et al highlighting the greater benefit of using student developed MCQ’s.² Currently, many medical students in the UK utilise several resources such as Anki Flashcards and Brainscape to create their own flashcards which incorporate Adaptive and Spaced Learning. This approach requires a greater level of mastery of content² which may further enhance critical thinking in students, a fundamental aim of “Firecracker”.¹ Such platforms also allow students to add to the question bank themselves, which may extend the benefit of this approach to Medical Students in clinical years who encounter further information on Clinical Placements.

Furthermore, a study by Deng et al compared the use of Anki with Firecracker on Step 1 performance, showing the use of Anki to be a significant predictor of performance rather than Firecracker.³ Whilst these results differ to the study by Borges et al, they nonetheless suggest an alternative adaptive learning approach which may optimise benefit for students.

Moreover, the study used exam results from non-Firecracker users as a control to elicit the effect of the system on examination performance. However, due to this selection the author is not able to account for a number of confounders such as a difference in the academic ability or students using Firecracker simply studying more than their counterparts. A more valid choice would be the use of grades attained by the same students from previous semesters as a control which would identify whether the Firecracker system improved student exam performance. Randomisation of students to each group may additionally reduce the effects of such confounders.

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Secondly, whilst the study found a statistically significant benefit in using Firecracker, it failed to explore the methods of learning used by the control group. As the study focused on the style of learning rather than the Firecracker tool itself, the results would be confounded had control group students used an alternative adaptive-spaced e-learning tool.

To conclude, we agree with the potential benefits of an adaptive e-learning platform highlighted in this piece and find it encouraging that Medical Schools around the world are looking to incorporate these systems into their curricula. With the COVID-19 pandemic inevitably driving the development of online resources for students, platforms such as Firecracker should be explored and evaluated to best prepare student for future clinical practice.

Disclosure

The authors report no conflicts of interest in this communication.

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