Reply to the Sudanese American Medical Association's letter to the editor about simulation-based education amid conflict

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Dear Editor,

Mohamed Almahal's letter (SSMJ 2025:18(1):50-1) regarding the experience of the Sudanese American Medical Association - Institute of Health (SAMA-IH) with "simulation-based education" for clinicians is interesting and relevant, particularly for medical educators in South Sudan and other countries that face recurring disruptions due to cycles of conflict. However, the significance of this initiative can only be fully appreciated when one considers the context: dysfunctional hospital services, a shortage of qualified clinicians on site due to displacement, low patient numbers, and a lack of diversity in patients—all of which serve as barriers to acquiring adequate clinical skills. Consequently, most health training programmes, both pre-service and in-service, ultimately fail to deliver effective training, as they primarily rely on classroom-based learning, predominantly using didactic methods, which are very limited in building clinical skills among learners.

The letter suggests that simulation-based learning is a viable alternative to traditional teaching methods. Various approaches to simulation are currently employed globally, such as mannequin-based computer simulations in skills labs, which have recently been extensively utilised and proven effective. They provide the added benefit of equipping learners with physical examination and testing skills. However, they are costly, require space and a reliable electrical supply, and are challenging to maintain, not to mention the need for replacements. SAMA-IH opted for a digital medical simulation platform called "Full-code." This platform offers numerous common case scenarios that a doctor might encounter, including options to obtain a detailed history, a summary of the requested physical examinations and vital signs, stabilising the patient, requesting investigations including blood tests and imaging (results being made available instantly), and encouraging the learner to make a diagnosis and select the appropriate medical or surgical intervention. It finally analyses performance and provides Continuing Medical Education (CME) support. While I recognise it has the potential to enhance learning significantly, as suggested by the student feedback, it is also crucial to acknowledge some of its limitations, especially in the African context.

I will begin by posing a few questions to the authors. (1) Does using the digital platform require reliable internet access, or can it operate offline? I ask this because internet access is poor in many conflict-affected countries, and it is inconsistent and exceedingly costly, particularly when satellite internet is utilised. (2) What devices did the students use to access the cases – laptops, tablets, or Android phones? Were these provided through a computer laboratory or library? Our experience indicates a need for a computer lab with a stable electrical supply. Although students have smartphones in South Sudan, a significant barrier is the cost and quality of mobile internet. Most health science institutes in South Sudan lack computer labs, which is a worthwhile investment for enhancing medical education.

Having been involved in pre-service and in-service medical education in South Sudan for over a decade, I recognise that utilising a digital learning platform with a self-directed approach presents unique challenges and requires substantial tutor assistance. This is primarily due to the scenarios modelled on standard emergency room environments in the developed world, including access to various monitoring devices, blood tests, imaging, etc. However, 90% of these resources are unavailable, even in many regional hospitals in South Sudan. Consequently, tutors with clinical experience must assist students in applying their newly acquired knowledge to the local context. These simulations should not foster a reluctance to intervene based solely on clinical diagnosis (waiting for investigation results may be fatal), often leading to delays and poor outcomes. Rather than adhering to standard treatment guidelines, discussions should focus on the best possible intervention. The case scenarios would be best to be customised to the local context.

Additionally, the treatment guidelines need to be based on the medicines available locally and include considerations of cost-effectiveness, as most medicines may need to be purchased from local pharmacies at exorbitant rates. I must again emphasise the critical skill of physical examination to pick up the proper findings, which is essential for the correct diagnosis. It may even be as basic as measuring the pulse rate, respiratory rate, and blood pressure. The inability to impart these clinical skills is one of the major weaknesses of these digital case-based simulations.

Can a similar learning experience be provided without a 3D digital case simulation? We have employed role-playing, co-learner-centred methods (using actors), and case discussions utilising videos, photographs, or verbal case presentations based on real-life local scenarios. These can be delivered via offline digital learning platforms such as 'Articulate' and/or Moodle (an open-access learning platform). At the Jonglei Health Sciences Institute, we have been experimenting with a Remote Access Community Hotspot for Education & Learning (RACHEL), which uses a local area network (LAN) to bypass the barrier of poor internet access. Unfortunately, all these methods remain tutor-dependent, one of the chief barriers to establishing effective clinical training. However, it is vital that tutors' training programmes, such as the one taught at the College of Physicians and Surgeons in Juba under the Ministry of Health, Republic of South Sudan, include courses on digital learning methods for teaching clinical skills. Introducing these innovative digital learning tools offers solutions to overcome resource constraints and can improve the quality of medical education in conflict-affected countries.

Reference

1. Details of the Articulate Learning Platform can be accessed from www.articulate.com

2. Details of RACHEL can be obtained from https://hundred.org/en/innovations/rachel-remote-area-community-hotspot-for-education-learning