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ABSTRACT BOOK

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Transforming Pharmacology Learning in Medical Students with Technology-Enhanced Active Learning

NOUR EL HUDA ABD RAHIM[1]*, WAN MUHAMAD SALAHUDIN WAN SALLEH[1], RIFAIE LUTFI[2]

[1]Department of Basic Medical Sciences, Kulliyyah of Medicine, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia

[2]Fakulti Sains Komputer dan Matematik, Universiti Teknologi MARA Kampus Kuala Terengganu, 21080 Kuala Terengganu, Terengganu, Malaysia

**Corresponding author: elhuda@iium.edu.my*

ABSTRACT

Introduction: Pharmacology is a content-dense discipline that often challenges pre-clinical medical students due to extensive memorisation and complex mechanisms. Traditional lecture formats remain the dominant approach but often limit student engagement and meaningful integration of concepts. This work reports the implementation of a structured teaching approach that integrates technology-supported activities and visual learning strategies to support conceptual understanding and recall during pharmacology lectures. **Materials and methods:** Several pharmacology lectures in Year 1 and Year 2 were redesigned using TEAL components. These included interactive platforms (iTA'LeEm (IIUM Learning Management System), Mentimeter, Padlet, Quizziz), visual mnemonics (Chemoman, Anti-TB Man) and two educational e-books: *Aethra Pharmacology Mnemonics,* incorporating AI-generated illustrations, and *Diuretics Field Trip,* which mapped diuretic drug classes to nephron sites using landmark attractions in Pahang. Some sessions incorporated short activities focused on concept application, visual understanding, and active recall. The approach was refined through teaching reflections and observation of student engagement with the activities. **Results:** The TEAL approach enabled pharmacological concepts to be delivered more clearly. Visual mnemonics and illustrations supported the explanation of drug mechanisms, while interactive elements created a more dynamic learning atmosphere. The variety of tools also helped accommodate different learning preferences and reduced reliance on passive listening. **Conclusion:** This TEAL-based model offers a feasible and adaptable strategy for modernising pharmacology teaching. By combining technology, structured visual aids, and brief active-learning tasks, the model supports more engaging, concept-driven delivery of content-heavy subjects and can be readily adapted by educators seeking practical enhancements to traditional lecture formats.

Keywords: Active learning; medical education; pharmacology; teaching strategy; technology-enhanced active learning