

Enhancing medical education through gamified microteaching and digital reinforcement in a new university hospital setting

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Background: The establishment of Midland Metropolitan University Hospital (MMUH) in October 2024, following the merger of Sandwell and City Hospitals, created the newest acute care university hospital in the UK. This transition was associated with a marked rise in patient acuity and emergency department (ED) attendances, including the highest ambulance conveyance rate in the West Midlands. Junior doctors, including non-training grade clinicians, faced increased clinical complexity alongside reduced access to structured education. A rapid, sustainable educational intervention was therefore required.

Methods: An ongoing Quality Improvement Project was implemented using a three-cycle Plan–Do–Study–Act (PDSA) framework over 4 months. Brief, 10-minute microteaching sessions were delivered Monday to Friday during ED handovers. Sessions were interactive, case-based, gamified, and mapped to the Royal College of Emergency Medicine curriculum to ensure relevance while minimising disruption to clinical workflow. Content selection was guided by curriculum mapping, local incidents, and trainee feedback. Evaluation was conducted using post-session electronic surveys assessing engagement, relevance, confidence, and clinical application. A monthly digital newsletter was introduced to reinforce learning, summarise sessions, share guideline updates, and provide educational access for staff unable to attend in person.

Results: Across all PDSA cycles, engagement and perceived impact were consistently high. Ninety percent of participants found sessions clinically relevant, and 80% reported enjoying the gamified format. By the second cycle, 88% reported improved confidence in applying knowledge, with no reported delays to handover processes. Overall, 91% were likely or very likely to apply learning, and 93% had already done so in clinical practice. Ninety-eight percent reported improved workplace confidence. Introduction of the newsletter achieved universal support and further reinforced diagnostic reasoning and decision-making. Trainee-led delivery increased over time, strengthening sustainability and team cohesion.

Conclusion: Gamified microteaching supported by digital reinforcement is an effective, low-resource strategy for delivering curriculum-aligned education in a high-pressure ED environment. This model improves knowledge application, confidence, and morale without compromising patient flow and is readily adaptable to other departments undergoing organisational change.

EDs face increasing clinical complexity, workforce diversity, and time pressures, which often limit access to formal teaching. Microteaching and gamified learning are recognised methods for improving engagement and knowledge retention, particularly in adult learners. Digital educational tools can extend learning beyond the clinical environment and support consistency during shift-based work. This project demonstrates a curriculum-mapped, handover-based microteaching model implemented during a major organisational transition in a high-acuity ED. It shows that brief, gamified sessions combined with digital newsletters can achieve high engagement, improve confidence, and support immediate clinical application, while remaining sustainable through trainee-led delivery.

Keywords: Teaching, medical, education, gamified, education, newsletter, resident.