A better way to teach basic surgical skills? A randomized control trial examining the effect of an e-textbook and the reverse classroom on basic surgical skills teaching

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Abstract

Context and Background

In recent years surgical education has changed. Simulation is being increasingly utilized as we move away from the old apprenticeship ‘see one, do one, teach one’ model. This change has developed partly in response to working hours restrictions enforced by the European Working Time Directive (The Working Time (Amendment) Regulations 2003), but also to address ethical, economic and legal concerns raised by historical education models (Barnes, 1987; Reznick, 1993; Kennbone and Apsimon, 2001; Hamdorf and Hall, 2000; Healy et al., 2013).

A recent review for the GMC into the impact of the EWTD (Morrow et al., 2012) revealed that many trainees were frustrated by the inflexibility of current training and that, due to service pressures, more training occurs in trainees’ own time.

To try and improve the teaching of basic knot tying skills, we developed an e-textbook and employed a novel pedagogy (the reverse classroom) and compared this to traditional teaching methods.

Summary of Work

A randomized control study was conducted to compare an iPad based e-textbook, coupled with a face to face teaching session; to a face to face teaching session alone. The intervention group had access to the e-textbook before, during and after the teaching session. The control group only received the face to face teaching session. Participants were assessed tying knots immediately following the teaching session and one week later.
**Summary of Results**

The intervention group required significantly less time to perform the knot-tying task in the classroom. Immediately following the teaching session, there was no difference between the control and intervention group at assessment of knot tying.

However, after one week, the intervention group performed significantly better than control participants.

**Conclusions and Implications**

The use of an e-textbook and the reverse classroom was shown to be both more efficient and pervasive than a traditional face to face teaching session alone at teaching basic knot tying skills. This method of curriculum delivery could easily be expanded to other areas, with significant benefits to the education of students.

**References**


