The Effect of Self-Assessment Versus Video Feedback on the Acquisition of Surgical Skills: A Systematic Review

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Introduction

- The significance of feedback is well recognised, as shown by its widespread adoption in medical, surgical, and non-medical disciplines [1-3].
- Self-assessment of technical and non-technical skill is encouraged as it promotes reflective practice and critical appraisal of ones' own work.
- However, risks innate to making subjective judgments of ones' performance have been highlighted in prior studies hence encouraging development of technology enhanced feedback methods [4].
- Video feedback can facilitate accurate, transparent, and unbiased feedback that does not rely on recall.
- However, video feedback has been shown to be costly, time-consuming, and difficult to standardize [5].
- Nevertheless, studies assessing the impact of self-assessment and video feedback remain conflicting, with results not explicitly favouring either feedback method [6-8].
- With a paradigm shift from open to minimally invasive surgery, shortening the learning curve for surgical skill acquisition is pivotal to promote efficient surgical training. This is especially true in an era where new initiatives, such as the European Working Time Directive, are demanding the same high-quality training to be delivered within a shorter duration [9].
- Therefore, the implementation of effective feedback for the learning of surgical skill is of ever-increasing importance.

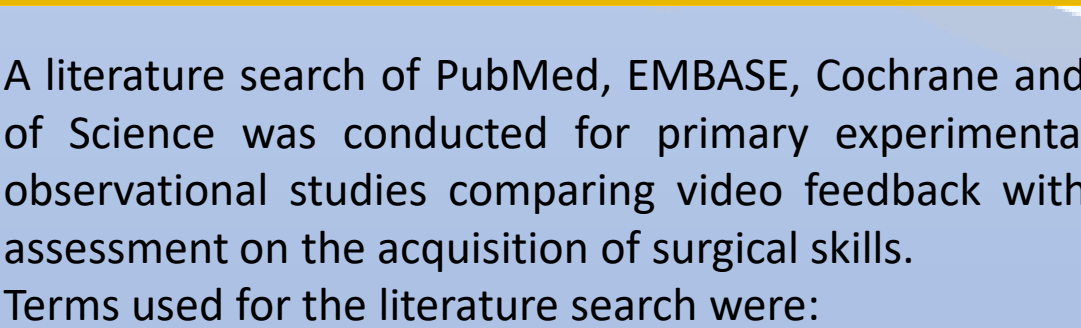
Aims

- **The primary aim of this review was to determine the effect of self-assessment and video feedback on performance of surgical skills and to ascertain whether one feedback method is superior to the other.**
- **The secondary aim of this review was to compare perceived opinion of both feedback methods and distinguish whether there is a difference in subjective change of performance.**

Methods

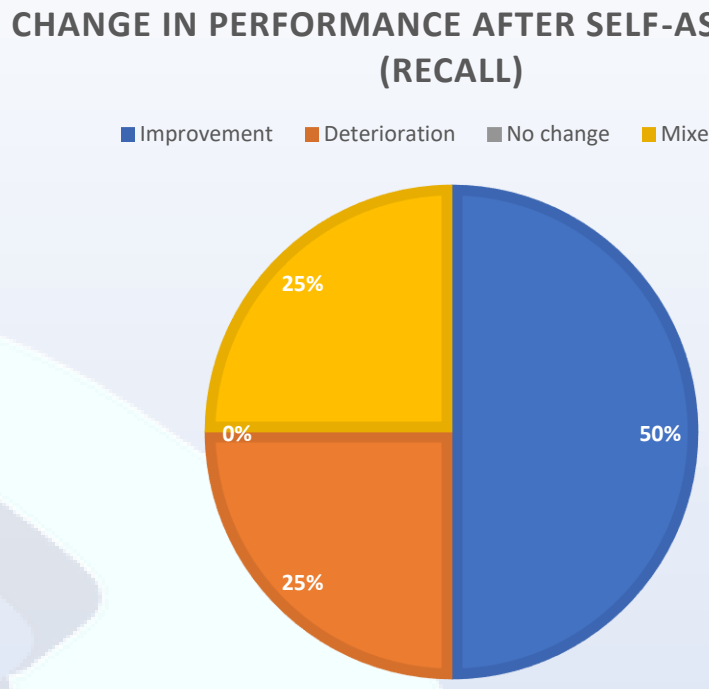
- A literature search of PubMed, EMBASE, Cochrane and Web of Science was conducted for primary experimental and observational studies comparing video feedback with self-assessment on the acquisition of surgical skills.
- Terms used for the literature search were:

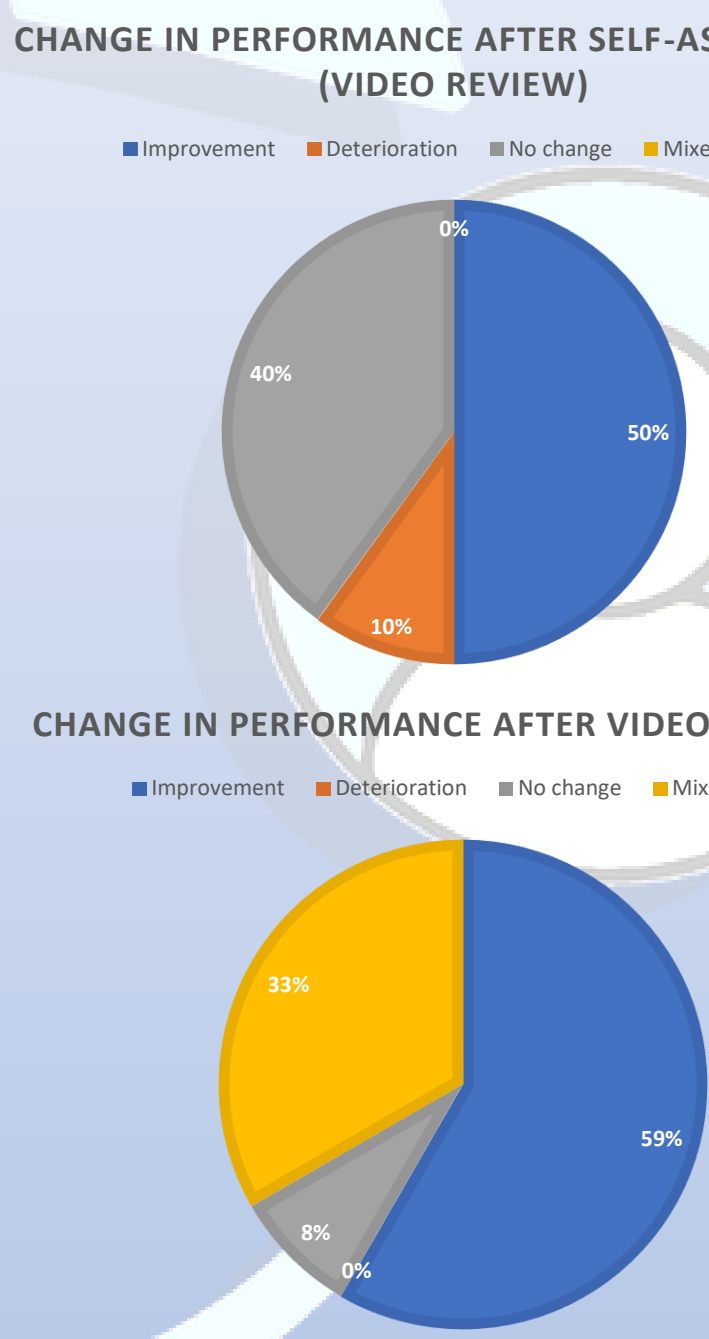
[self-assess* OR self-performance OR self-confidence OR self-evaluat* OR self-perception OR self-appraisal] AND [video OR record*] AND [surg* OR operat* OR technical] AND [skill* OR performance OR competence].



Results

- The changes in performance after self-assessment via recall, self-assessment via video review and video feedback via benchmark or expert feedback were analysed.
- The findings have been shown graphically below:





Conclusion

- The results suggest that although self-assessment can lead to significant improvements in surgical skills, a decline or no change is equally likely.
- Video review of performance accompanied by some sort of expert feedback, such as pre-recorded benchmark video or audio-visual annotations of recorded performance, are beneficial for learners.
- The provision of expert guidance mandates a benchmark that students can continually refer to. With audio-visual teaching methods being superior for knowledge retainment, the feedback provided via this method is retained for longer and facilitates easier emulation.
- In-depth analysis of the data has shown that both self-assessment and video feedback lead to improvements in surgical skill acquisition. There is suggestion that alterations in technical skill are dependent upon factors beyond the feedback intervention including participant level of training, stressful environment and study setting. Additionally, there remains the issue of ensuring video feedback is delivered in an unbiased and standardised manner through maintaining interrater reliability.

- **To conclude, this review suggests that video feedback has the potential to provide an effective and positive learning experience for trainees and can lead to improvements in surgical skill acquisition. However, despite video feedback being the preferred method of feedback by most participants, the available data remains unreliable and inconclusive and it remains difficult to adjudicate whether video feedback is superior to self-assessment.**

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