Collaborative learning in Evidence Based Healthcare (EBH): A poster of first year dental students on the use of videocamera in dental education


Introduction

Traditionally, clinical education revolved around undergraduate dental students’ receiving improvised feedback and having to rely on the observation of skilled clinicians performing operative procedures. We are constantly finding new ways to utilize existing technology for educational purposes, and looking for solutions for shortcomings in order to enhance the learning experience for dental students. As videos, databases and equipment become more accessible, can this technology play a role in modern dental education?? Loop mounted video cameras have the potential to enhance the students’ experience when demonstrating an operative procedure and could provide a valuable teaching aid. The importance of feedback has been well established in not only the medical field but also in other aspects of teamwork and solo skills development where it has proved to be vital in improving not only the perceptual skills but also the speed and accuracy of the performance. This poster will look at the use of cameras in feedback, and how this could affect practical skill development in undergraduate dental education.

Aims

1. Engage in research literature, and develop skills in searching and critically appraising evidence.
2. Explore evidence on the impact of implementing video in practical skills development for undergraduate students.
3. Explore evidence from other professions on the use of video in the feedback process.

Methods

Searching for relevant studies using online databases, such as PubMed and Web of Science using MeSH terms (e.g., Video recording, Education, Dental, Teaching/methods), as well as a targeted search from references.

Excluding any articles or studies which were not relevant to our aims.

Thoroughly evaluate research; achieved using CASP tools for critical appraisal of research, and member checking.

Video feedback

It has been shown that individual video feedback statistically improves skills from one try to the next more than group feedback. Type 1 - Unsupervised video feedback (UVF)

Type 2 - Individual video feedback (IVF)

Type 3 - Peer review (PR)

- When UVF and IVF were compared, they showed no statistically significant improvement in the students skills. However, there was a difference in the participants attitudes towards each method, with a strong preference for IVF. UVF is less time consuming so would make a more realistic option, but should be used alongside other feedback methods so that the student does not have an inaccurate perspective.

- Peer feedback has been shown to improve results more than faculty feedback. Peer feedback can be similar to that of the teacher if provided with some sort of guide, such as a checklist. It is likely that the student gains from both receiving feedback and giving it.

Examples

Other professions, like dentistry, also require similar levels of intricacy and refined skills and may be good indicators of how successful video camera feedback can be for undergraduate dental students:

- Dancers: the use of video recording allows them to capture their performance and gives the opportunity to reflect on their movements and view themselves in the eyes of the audience.
- Gymnasts: it has been reported that video feedback can shorten training hours for gymnasts, as well as maintaining higher performance levels overtime.

Findings from other professions should be treated with caution when applying them to a dental environment. This is because, their performance and movements can be judged subjectively and whether the improvement has been seen is all down to each individual unlike with dentistry, where clear targets need to be met.

Strengths

1. Easier to integrate theoretical knowledge with vital clinical skills.

- However, the study was done in Sweden, where different cultures such as preference for video recording and teacher led feedback seminars may have exaggerated the positive impact the videos had on students’ clinical skills and understanding.

- One of the main reasons students preferred this method was because of how easy it is to visualise procedures and if the UK doesn’t have as advanced technology as Sweden, this may not be the case.

2. Easy to download and good quality.

- 1mm overlay difference between video tracking of the proc and the actual tooth model. It is unclear whether this is precise enough for dental students to greatly benefit from such specific and small scale tasks.

- The data provides 3-5 frames per second.

3. It provides good self-assessment, promoting independent learning.

- Videotaped feedback opens doors for self-assessment which is necessary for embarking on lifelong continual development as a healthcare professional.

Limitations

Patient consent – valid consent is required, and patients may be uncomfortable with this.

Cost – purchasing loupe-mounted video camera technology would add an extra expense. However, newer and cheaper alternatives are being developed, such as video cameras which attach to normal glasses.

If the recording is being used for self-review the student might be making a mistake unknowingly. This may be corrected by attaining help from a peer or a tutor.

Restricted view - the patient may not be within the view of the camera. If this is the case, a special camera which tracks eye movement could be invested.

Effectiveness - a study evaluating the effectiveness of videotaped feedback for surgical students shows no significant difference in the speed of acquisition of the skill.

Conclusion

Collaborative learning on this project is useful methodology to engage in EBH and develop relevant skills. Utilisation of video technology is useful in practical skill development, largely due to the impact of gaining feedback. However, in healthcare there are several critical issues to consider, such as data protection, patient confidentiality and consent. Further research is imperative to its implementation in dental undergraduate education.