

THE USE OF A HIGH DEFINITION SURGICAL LOUPE-MOUNTED CAMERA FOR CLINICAL TEACHING

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Background

A fundamental component of high quality clinical education is student observation of skilled clinicians performing operative procedures. Clear practical demonstrations of techniques and procedures are invaluable for student clinicians. At times, this can be problematic as the oral cavity is a confined space, which can be difficult to illuminate adequately; furthermore, the operative field can be obstructed both by the operator's hands and the instruments being used. When teaching, this often makes it difficult for the clinical tutor to demonstrate effectively exactly how the procedure should be carried out. Generations of dental students will have been used to peering over the shoulder of their clinical tutor, straining to try and see what is being done.

Head-mounted cameras, which attempt to overcome some of these issues, have been available for many years; their designs have however been poor ergonomically and the image resolution has been considered unsatisfactory by modern day standards. The difficulties of operating whilst wearing such devices have been the major drawback. Clinicians often supervise the treatment of several patients at once so any device they use needs to be portable and unobtrusive to allow them to move easily between patients with it. In recent years, light, ergonomic, loupe-mounted cameras have been produced to try and overcome some of these issues.

Aim

To evaluate the use of a surgical loupe-mounted HD camera (Futudent, Finland) for clinical teaching.

Methods

Undergraduate students were exposed to teaching sessions carried out using the loupe-mounted camera in a simulated clinical teaching environment or during supervision of patient treatment. An anonymous evaluation form with a five point response to specific stem sentences reflecting on the episode of teaching was completed by each student.



Figure 1: High definition loupe-mounted camera

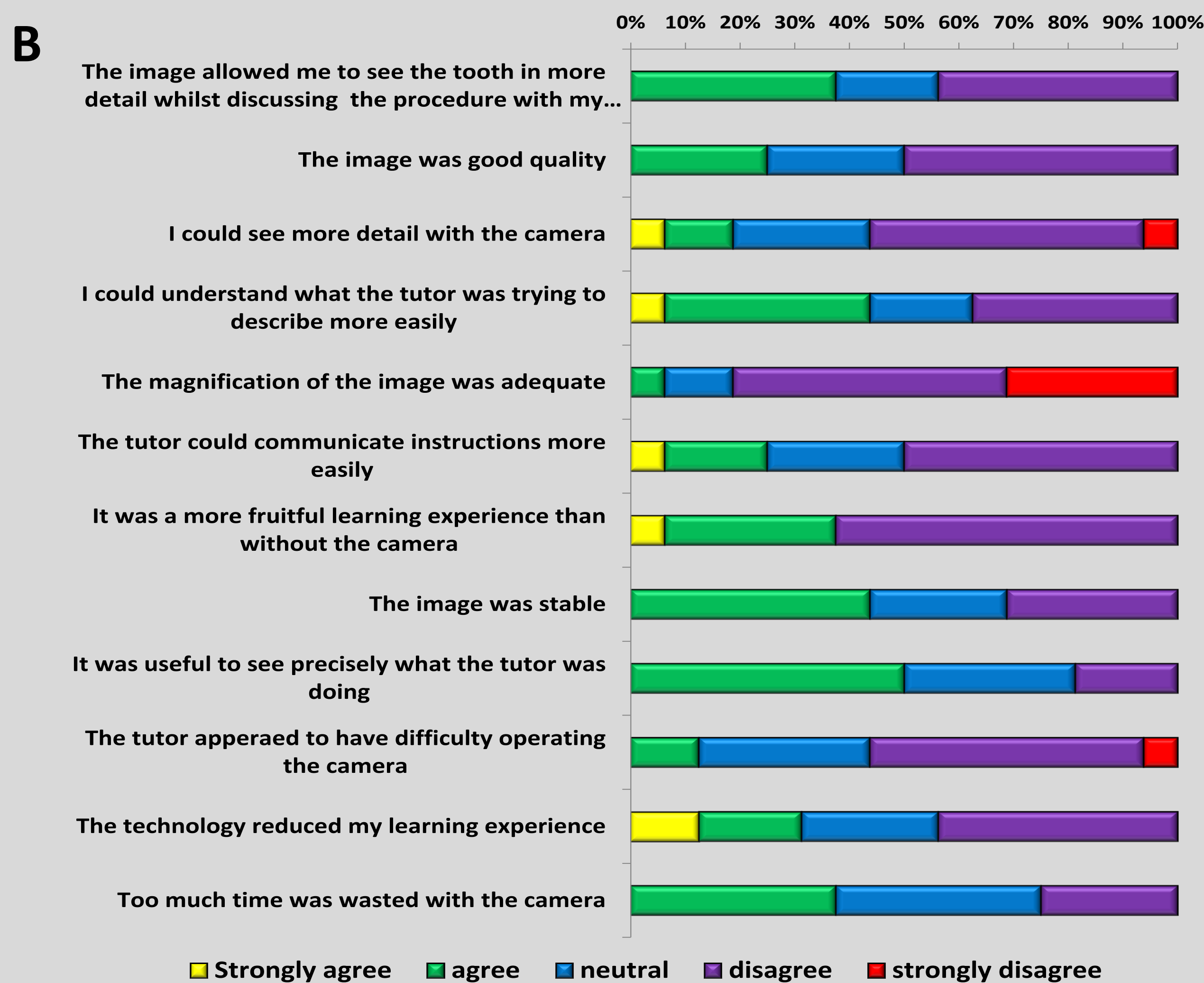
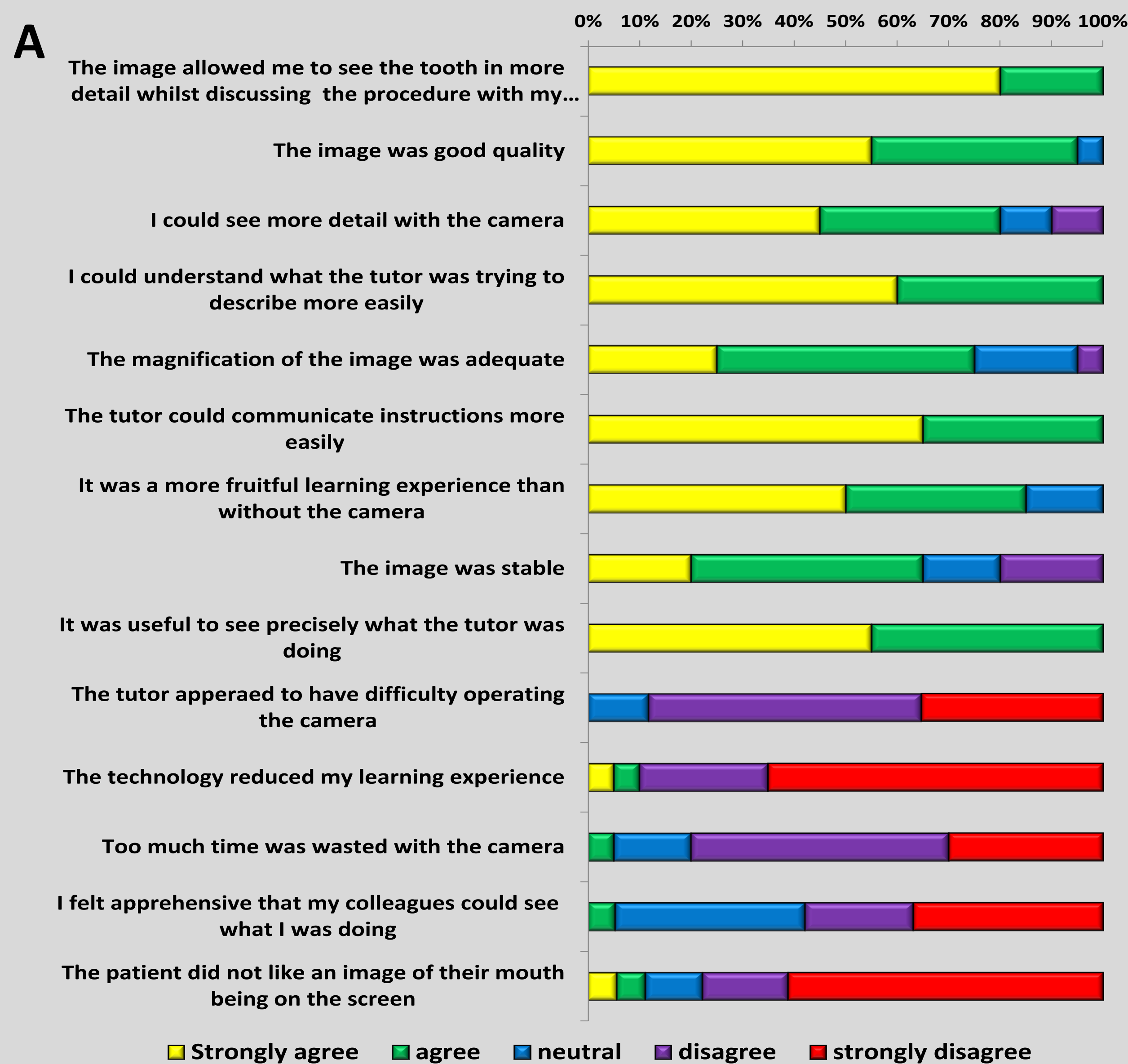


Figure 2: Summary of student responses to the anonymous survey. Students experienced the loupe-mounted camera during their teaching session in either **A)** a patient clinic or **B)** a simulated environment.



Figure 3: Clinical staff member supervising patient treatment on student clinic using the loupe-mounted camera; the laptop displays the image seen by the clinician.

Results

There was a total of 36 responses, 20 in which the experience was on a clinic with traditional supervision of patient treatment and 16 which related to simulated clinical teaching in a clinical skills suite. Students were extremely positive about the enhanced experienced with the camera when being supervised for patient treatment; 100% of respondents agreed or strongly agreed with the statement, "The image allowed me to see the tooth in more detail whilst discussing the procedure with my tutor". The response was far less positive for simulated clinical teaching with only 37.5% agreeing with the above statement.

Discussion

Students overwhelmingly report that teaching with the aid of the loupe-camera enhances their ability to see what the tutor is looking at and allows instructions/guidance to be communicated more effectively whilst carrying out treatment on a patient. The feedback for its use as a teaching aid in the simulated environment was far less positive. It is likely that the main reason for this opinion is that the student cohort evaluated is used to high quality fixed cameras within the clinical skills suite which display images on large monitors.

Conclusions

Students report that the loupe camera is an excellent teaching aid for clinical supervision when treating patients.