Surface Hub Teaching Session 26th May 2017

Introduction

This is an account of a teaching session delivered between two sites using a Microsoft Surface Hub on May 26th, 2017. The near end (where the tutor was located) was at Southmead Hospital in Bristol, and the far end was at Yeovil General Hospital. Observation of the session was carried out from the far end.

Setup, participants and seating

The near end was a classroom equipped with a Surface Hub and what appeared to be two rows of seating at the back of the room behind the tutor. The far end was also a classroom with the Surface Hub and three rows of four chairs arranged in front of it. The closest chairs were less than 2 metres from the Surface Hub.

There were four 3rd year medical students at the far end (although a fifth student joined for the last few minutes of the session). There were 5 2nd year medical students at the near end. The session was aimed primarily at the 3rd year students at the far end but the 2nd year students were invited to attend if it was of interest.

Structure

This was a small group teaching session on kidney disorders. At the start the tutor introduced himself and clarified that he welcomed questions and suggestions. The students knew that he is a renal specialist, but the exact agenda was negotiated by the tutor with the students at the beginning of the session. The topics agreed were then dealt with in sequence. A summary was provided at the end

Each topic started with a definition of the condition and its different types, followed by examples of these. The tutor also presented a clinical vignette including patient data, from which he elicited a diagnosis from the students. He showed how the patient's observations and investigation results changed over time and students were invited to account for these changes.

Interaction

Almost all interaction during the session took place directly between the tutor and the students. There was some sotto voce conferring between some of the students at the same end, but this was minimal. There was no interaction at all between students at opposite ends.

The pattern of the interaction in this session mainly followed the initiation, response, feedback sequence (IRF) where the tutor asks a question, one or more of the

students attempt to answer, and the tutors gives them feedback on their answer.

The feedback from the tutor took various forms, including a simple 'yes', or 'any advance on that?', or as a follow-up question 'so what would be an example of that?' In this session the tutor also fed back that the student's answer was acceptable by writing it on the electronic whiteboard.

Example 1:
Tutor asks a question, student answers, tutor accepts and then follows with another question. In this example the tutor asks for a classification, then asks for examples in each category.

T: How do you classify AKI?
S: Prerenal and renal?
T: Yep, and renal is going to be there – adds to the diagram – so what sort of things are going to be pre-renal?

Example 2:
The tutor keeps the question open rather than immediately assessing the first response.

T: What percentage of cases have a pre-renal cause?
S: 50
T: 50% - any advance on 50%?

Students suggest examples and the tutor evaluates them and adds comments and details.

Example 3:

The tutor uses an acronym e.g. STOP (sepsis, toxins, obstruction, parenchymal kidney disease) as a mnemonic for the frequency of different causes of acute kidney injury. The tutor tells them what the S stands for (sepsis) and then asks the students to say what each of the other letters might represent. He then adds comments and more information to his answer. He writes the letters vertically on the whiteboard and then writes the details next to each letter as he elicits them from the students.

Example 4:

Tutor asks students to interpret the clinical data that he presents and then prompts students to draw inferences from it.

T: What do you think about the CO_2 is that normal, high, low?
S: Low
T: A little bit low isn't it – so what does that tell us?
S: Respiratory compensation

T: Yes a little bit of respiratory compensation hasn't he

The tutor often checked the students understanding by asking "Is that ok?" "Are you happy with that?" While this invites questions from students if they don't understand something, it arguably does not really tell the tutor whether or what the students have understood. However he did also ask many more open questions that would have confirmed the students' understanding.

Participation

Of the 4 students present at the far end, 2 participated very actively and other two participated but quite a lot less. Participation was mainly in the form of answering the tutor's questions but the two most active students also raised some of their own questions. One student did this in a style and voice that seemed hardly different to the one she might have used in a small group interaction involving a tutor at the same site. She did not raise her voice or even signal that she was about to speak or request permission to speak. This did not cause any breaks in the communication and her questions were noticed and responded to by the tutor. The other highly participative student gave more overt signals that he wanted to ask a question.

It was not possible to gauge how many students participated actively at the far end, but there were quite a few questions asked from that end. However, these were not audible at the far end. The tutor did not repeat the questions asked at the near end so students at the far end did not know what had been asked.

Balance of interaction between the FE and the NE

Most of the interaction took place between the tutor and the students at the far end.   The tutor stood directly in front of the Surface Hub and looked at it, thus giving the impression that he was addressing the far end. There were also some sequences lasting a minute or two when interaction was between the tutor and students at the near end. At these points the tutor appeared to step back from the Surface Hub and angle his body slightly towards the near end students, which gave a clear impression at the far end that the tutor was addressing the near end students. There were one or two instances where a far end student interjected into these interactions, suggesting that the far end did not feel disadvantaged or excluded from participating.

Use of visuals

The tutor used a whiteboard and erased its content at the end of each section. The whiteboard was used for bullet points, simple tables (e.g. listing the differences between AKIs and chronic Kidney failure), presenting details of a clinical vignette. The tutor gave the impression that he had planned the layout of many of the whiteboard 'slides' and diagrams before he created them, as they were all well organized.

A disadvantage of erasing the whiteboard each time was that it was not possible to refer back to previous 'slides'. However, the Surface Hub does allow these to be saved and reloaded as image files. This has an implication for how staff are trained in the use of the whiteboard.

Picture and Sound

The sound quality of the tutor's speech was generally very clear and always audible. Due to the distance that the tutor was from the microphone and the acoustics of the room the sound received at the far end was not quite as 'dry' as it would be ideally, although this was not a significant problem. However, as noted above, it was not possible for participants at the far end to hear questions and comments from the students at the near end.

The picture quality was clear and consistent. However, there were two issues that affected how clearly the tutor could be seen at the far end. Firstly, the lighting at the far end was not ideal – most of the light was coming from behind the tutor as he faced the Surface Hub and therefore, he was not lit very well and was slightly in shadow. Secondly the size of the video picture was quite small on the screen of the Surface Hub at the far end. The whiteboard took up the whole height of the screen, and since the video picture is the same aspect ratio as the whiteboard, this only left a small portion of the screen available for the video. Further investigation needs to be done into the options for resizing the different components.

Participant feedback

A brief group discussion was held with the participants at the far end immediately after the session.

None of the students at the far end had experienced a session of this type delivered this way but they had used it for an anatomy demonstration. Their overall comment was that it was better than they were expecting it to be. However, they felt that their experience would have been better if they had been in the same room as the tutor.

One student's perception was that she had to shout louder to get heard. (However, this student had been observed to successfully interject and ask questions without perceptibly raising her voice above a quiet conversational volume.) They thought that it would be better to be in the same room as the tutor because if you have a question, rather than stopping the tutor abruptly, he could see you there and know you had a question. They would have been able to interpret pauses and know when to ask questions.

On the other hand, they felt that participating via the Surface Hub was not very much worse than being present in the same room, and this was mainly because the

tutor was a very good teacher. This was because he encouraged them to ask questions and he seemed to hear them quite easily.

The far end students thought that the tutor was mainly talking to them at the far end but including the near end students. The far end students couldn't hear when the near end students asked a question so they couldn't really follow what the answer was and thought it would have been nice if the tutor had repeated the question.

One student commented that he focused mostly on the picture of the tutor and this should have been bigger. If the tutor was in the room, you'd have the person in the room, and you could see what they are doing and the whiteboard would be separate.

The size of the video picture wasn't too much of a problem in this session but would have been if it had included practical demonstrations or where the tutor was showing things they had there. For example, if it was a session on dermatology it would be hard to see the rashes that they'd be trying to show.

They thought it would have been helpful to have the whiteboard saved for later reference, but especially if this could be coupled with an audio recording of the session. This would be a helpful revision tool.

Some observations and conclusions

The impression was that the tutor's approach was not radically affected by the technology. It was quite similar to how he would have delivered a fully face-to-face session, except that at times he stood back from the screen when he was speaking to the near end students. The session did not require any specific preparation to accommodate the set up and was successful principally because of the effectiveness of the technology and the skill of the tutor in involving the far end. It was probably also assisted by the fact that the near end students were 2nd years and this was an optional session for them, meaning that the tutor could focus most of his attention on the 3rd year students at the far end.

The impression received by the far end students that the tutor was mainly addressing them was probably enhanced by the fact that as he wrote on the whiteboard he was facing the Surface Hub camera therefore appeared to be looking at the far end students, whereas his back was towards the near end students.