

Guidelines for tutors using the Surface Hub

Teaching approaches

It should be possible to use most of the same teaching approaches that you would use in face to face teaching, although there should be even more emphasis on making things interactive and keeping the students active.

In the work so far with the Surface Hub, 2 main ways of doing that have been observed:

- 1) mostly through talk – the tutor talking to and asking questions of the students in a Socratic dialogue, or Initiation – Response – Feedback sequence. Visual aids are created by the tutor in real time during the session, often based on the students' responses.
- 2) getting the students to do tasks on the Surface Hub (for example labeling a diagram), then giving them feedback and asking questions to prompt further thought. Tasks are based on pre-prepared materials which the students add to.

Approach 2 will require more detailed preparation of materials and tasks than approach 1 but may result in greater interaction involving a higher proportion of the students (see below). Approach 1 requires a high level of tutor skill in managing and structuring the discourse, encouraging participation and responding flexibly to the student's responses and would be recommended for use by tutors with experience in this approach, whereas the tasks in approach 2 provide support for less experienced tutors.

It has also been demonstrated that teaching sessions that combine sections delivered via the Surface Hub with sections delivered face to face can be very successful. An example was a session focusing on a medical condition where students based in a hospital setting received teaching in the relevant background science delivered via the Surface Hub, followed by hands on practice of associated clinical examinations and a presentation of an actual patient suffering from the condition. There was then a further Surface Hub session that related the clinical material back to the background science.

Engaging students using the Surface Hub

A higher proportion of students will be more actively engaged in the session if they all stand at the Surface Hub.

It has been observed that during the approach 1 describe above, where students were sitting in rows in front of the Surface Hub but a few week back from it, some of

the students answered most of the questions which meant that not all the students were actively engaged. Where approach 2 was used, and the students were all standing together at the Surface Hub, all the students were engaged. Even if not all of them spoke to the tutors, they were all involved in working together to complete the task. It is recommended that the maximum number of students standing at the Surface Hub would be about 8, with an ideal maximum of about 6.

Using the Surface Hub, it should be possible to interact in an almost completely natural way with minimal difference compared to a face to face session. There is no perceptible time delay in transmitting sound between the different sites so it should be possible for participants to interject and ask questions more or less naturally without the need to raise their hand or raise their voice etc.

Setup of the equipment

Sound

The ideal room for the Surface Hub would be not too big and to have relatively 'dry' acoustics as this will transmit a clearer sound to the remote site(s). Although reverb in the transmitted sound will not normally affect the intelligibility of speech, a 'dry' sound will be clearer and easier to listen to particularly over a period of time. Simple measures like closing curtains can help to reduce room reverb. While using the Surface Hub, standing close to the device will minimize the effects of room reverb resulting in a much 'drier' transmitted sound.

Lighting

It is also important to optimize lighting as far as possible so that participants can be seen clearly at the remote end(s). The most important thing is to avoid having a strong source of light, e.g. a window, facing the Surface Hub. If windows cannot be covered or blacked out, then if possible position the Surface Hub so that the window is behind it.

Organising the Surface Hub screen

The Surface Hub allows various visual support media to be used, including an electronic whiteboard, PowerPoint slides and a web browser.

Each Surface Hub has two pens, which students can be encouraged to use to complete tasks and helps to engage students actively. It's probably best to ensure that the students nominated to use the pens have reasonably clear handwriting.

When using visuals other than the video the visual medium will normally be maximized, meaning that the video will only occupy a small section of the screen and

will be quite small. However, some students tend to focus their attention on the video picture of the tutor, so it is probably a good idea to ensure that this is displayed at full screen for at least some of the session. This will convey a greater sense of 'virtual presence' of the tutor and indeed all the participants.

This could be for example at the beginning of the session during the introductions, or when you want to show 'analogue' media such as a 3D or even use an old-fashioned flip chart. Be aware however that traditional whiteboards are very reflective which means that they may not display very clearly at the other end of the Surface Hub link.

Selection of visual aids

The Surface Hub supports a range of visual aids including electronic Whiteboard, PowerPoint, web browser.

The Microsoft Whiteboard is freely available for Windows, Mac and on the web, which means that you can create work ahead of time.

The Whiteboard allows participants to write and draw on it to create bullet point lists, tables, diagrams etc. A major advantage is that participants at both ends of the link can use it at the same time and can edit each other's work. To save your whiteboard and to share the Whiteboard for collaborative working, you will need to sign in with your University account. This means for example that students at the remote end can label a diagram created by the tutor, and the tutor can correct the students' work in real time. It is also possible to paste images into the whiteboard and draw on top of these. The ease of drawing on the whiteboard makes it particularly suitable for developing visual material during the session. If you use the Whiteboard to create material in real time during the session, then it is recommended that you save each whiteboard and create a new whiteboard to start on a new topic or phase of the session. The Whiteboards can be exported as images or OneNote pages which can be distributed to the students via email or a shared OneDrive folder.

The advantage of using PowerPoint is that it makes it easy to create materials ahead of time. It is also quite suitable for creating tasks for students to draw and write on. It also presents numbered slides that the students can flip through, thus providing a reliable way of organizing a sequence of tasks. The main disadvantage is that it is not possible for the tutor to edit the students' work.

Training students to use the Surface Hub

Most of the controls of the Surface Hub are intuitive and easy to use. However, it is probably a good idea to check whether the students have used it before, and if not to go through the main controls with them. These would be:

- 1) How to adjust the volume on the Surface Hub
- 2) How to switch views between full screen video and a view containing visual

- media.
- 3) How to use the pens.
 - 4) How to save visual materials transmitted or created during the session.

Managing Skype sessions with students at both ends

Skype link-ups where there are students only at the remote end of the link enable the tutor to fully focus their attention on the remote end. However, there may be occasions where there are also students present in the same room as the tutor. In this case it is important to manage the interaction so that students at the remote end feel included and able to participate fully.

This is helped by the fact that when working at the Surface Hub the tutor will have their back to the room and be looking into the Surface Hub camera, thus giving the impression of addressing the remote end, with the danger that the students at the tutor's end will feel excluded.

If you do have students present with you, some ways of including both ends would be:

- 1) When you want to talk to the students at your end, stand back a little from the Surface Hub – this signals to the far end that you are addressing the students at your end.
- 2) When students at your end ask a question, repeat the question to ensure that students at the remote end have heard it
- 3) It may be beneficial to have the students at your end standing near you at the Surface Hub, rather than seated behind you. This should give a more natural sense of being able to turn to address them or to the Surface Hub to address the remote end. (However, this approach has not yet been verified).
- 4) If students at the two ends have different roles in the learning event this can help to differentiate the amount of attention they receive. For example, one session that was observed was principally organized for the 3rd year students at the remote end, but 2nd year students at the tutor's were invited to participate optionally. This gave the remote end students the impression that the session was mainly focused on them, but still enabled the near end students to participate to some extent.