

Using visualisers in your teaching

Overview

Visualisers typically consist of a clear flat surface with a high quality video camera vertically above it to allow you to project a clear, steady video stream to a screen. Most visualisers will have an adjustable arm to allow the height of the camera relative to the flat surface to be adjusted, and good ones will have lighting, zoom and picture cropping functionality built in to easily ensure a high quality image. They are typically used to project printed or hand written documents, and are thus often called document cameras. However, the optics on these can be good enough to project clear images of many objects including 3D-objects, photographs and even the screens of laptops and mobile devices.

This guidance will talk about why you would choose to use them; how you would do so in the various modes of teaching currently employed by the School; and practical considerations when using them.

The benefits of using visualisers

Visualisers are often overlooked or actively passed over by teachers in favour of whiteboards in classroom.

While this document is not intended as an argument against the use of whiteboards – and we do not promote visualisers as replacements for whiteboards – our discussion of the benefits that visualisers offer will address many of the perceived benefits that whiteboards offer.

The intent of this guidance is to simply convince more teachers to try these wonderful devices.

Some of the immediate benefits of using a visualiser in the classroom include:

- The hardware is simple to operate, and full instructions are provided in all rooms.
- You can easily switch freely between projecting content from the visualiser and content on the teaching PC. Again, instructions are provided in all rooms.
- Using visualisers means you can more easily maintain eye contact with your students and avoid talking away from them, i.e. towards the whiteboard.

There are additional benefits of using visualisers regardless of whether it is in an on-campus classroom or in your own home (which are discussed below). In particular:

- All projected content can be saved for easy, high quality ‘scanning’ and distribution to students.
- The video output can be easily recorded to be incorporated in lecture recordings for your course.
- You can easily reference not only all earlier content from the class, but from previous classes too (if written content is preserved), simply by putting the relevant content under the screen.
- Visualisers are more forgiving of small or poor handwriting, and poor quality/colour pens.
- While paper is required, you can use almost any writing tool that you would normally use for handwritten documents – including pencils.

Of course, visualisers offer several benefits that may be particularly desirable given the current situation on campuses:

- They offer a smaller surface area that is simpler to clean and sterilise.
- Their content (that is, their video output) is easily incorporated into online streams (for online and hybrid/hyflex classes).
- Their content can also be streamed to students’ devices even in purely physical classes (e.g. using Zoom) allowing you to display very fine content (e.g. printed tables from old printed publications).
- They can reduce the amount of area you need to traverse in physical classes when working with whiteboards
- They offer better visibility and legibility than whiteboards over long distances (due to built-in lighting and zoom functionality). This is particularly important given that 2m distancing layouts will mean that

students can no longer move closer to the board, and many more classes will see students seated at the backs of long rooms.

Notes on Hardware

Visualisers are installed in almost all teaching classrooms. Instructions on how to operate these devices (including projecting them onto the screen) can be found on the DTS [Teaching Room Equipment](#) page.

Similar functionality can be quite easily achieved at home, for online teaching, and affordably too. The cheapest approach is the free approach that uses an existing mobile device – either a tablet or mobile phone (whose light weight make it ideal for this sort of setup). All this requires is you raise the phone above the desk (say by using a pile of books) and balance the phone over the edge so that the camera has an unobstructed view of a suitably large enough space immediately below it. You can see a quickly assembled example of this, as well as the output it can produce, in the pictures below.



Notes on Software

Physical classes

If you are using the visualisers provided in on campus classrooms, then no special software is required. Indeed, you do not even have to log into the School's network via the teaching room PC to be able to use them in purely physical classes. Note that it is not possible to connect the classroom visualisers to your own laptop for, say recording purposes (if you would like to do this, see the comments on Zoom immediately below).

Hybrid classes

If you are teaching in a physical classroom, it is possible to both stream the output of the visualiser to online students as well as record it using Zoom on the teaching PC (LSE login required). The visualiser will appear as another video camera source for Zoom to share. Further instructions are available on how to:

- Share the visualiser output via Zoom.
- [Record Zoom sessions](#).

Online classes

For streaming live content to students in class, then consult the remarks above about using Zoom in hybrid (hyflex) classes.

If you wish to simply record video capture of visualiser content (e.g. for asynchronous content such as lecture recordings) then Zoom is still an option, but you will get better quality footage if you use your mobile device's built-in camera to record video. This can be particularly useful for fine-detailed content such as mathematical derivations or detailed sketches/graphs.

Of course, for both online and hybrid/hyflex classes, graphics tablets

Practical considerations

Here are a collection of small tips that may be appropriate for your teaching. If you have any more you would like to suggest, please feel free to send them to us at eden@lse.ac.uk.

To save time in classes you can prepare your 'blank sheets' before the class – for example, writing down the start of particular problems/theorems that you now you will be considering, or even using the outputs from previous classes as a start point for another class. This can also allow you to pre-draw precise sketches (e.g. circles) or blank tables.

To enable easier referencing of early material and post-class scanning, number all pages in the order you use them and keep them to one side.

To scan pages into a PDF document for circulation, a particularly simple to use option is [Microsoft's Office Lens](#), which is supported on [iOS](#), [Android](#) and [Windows](#) platforms (follow the links for instructions on how to download and use the application on each platform)..

To reduce paper usage you could consider getting some reusable mini-whiteboards. This is [one example](#) of such a pack, but you can find cheaper options on both Amazon and eBay. These can be quickly cleaned by rinsing under the tap. Your department should be able to provide appropriate pens (and may also either already have the whiteboards, or be willing to purchase them for teachers).