Sharing OneNote in Virtual Classroom

In the recent Exploring Whiteboard Approaches blog post we shared different ways of presenting mathematical writing using whiteboards we touched on how OneNote might be used as a tool for demonstrating handwritten content as well as a collaborative space for mathematical note taking.

To expand how how to use this approach we have added some further explanation below:

Writing Maths with OneNote

OneNote is an ideal note-taking tool that allows for simple hand-writing tools to be used, but also have a convert to maths function available.

- Create math equations using ink or text with Math Assistant in OneNote
- Change handwritten ink to text or math in OneNote for Windows 10

Writing with the ink and creating a conversion is relatively straight-forward, by using the “Fix it” option you can quickly sub-select components of your handwriting to find alternative symbols used in your maths writing.

This will need to be tried with your handwriting and device to test for suitability.

Use in Tutorial Session

To broadcast live annotations I would suggest the following approach if you have a desktop/laptop with stylus/tablet setup.

1. Use desktop/laptop for Blackboard Collaborate, and choose to share your screen
2. Use the tablet input to write your maths on OneNote
3. Your annotations will appear on the shared screen after a short delay

Potential Issues

- There are some reports the convert to maths option is not available on some tablet app versions of OneNote
- If broadcasting your screen from a desktop, but writing on a tablet with OneNote there may be slight lag in updating the Cloud version
    - Alternative is to use tablet or Wacom tethered to desktop to use OneNote

Heather Yorston has been using a similar approach and gave a short overview of this at a recent Teaching Hour with a session titled, "How do I teach Maths online?".

Exploring Whiteboard Approaches

The questions around whiteboard approaches and mathematical writing have come up numerous time throughout the summer. There has been some really interesting discussion within the School of Informatics as well as more widely within the College.

Unsurprisingly, there is no single solution that solves all of the scenarios raised by colleagues. A good starting point is to consider the ways that you might want to use a whiteboard –

we have summarised some solutions to the following approaches below:

- Live demonstration to students
- Recorded demonstration to students
- Collaborative whiteboard tutorial

The following approaches are suggestions and not the only solution. You can check out further suggestions and alternatives via the Hybrid Teaching Technology and Tools Finder.

Live demonstration to students

If you are delivering teaching via a video conferencing tool / virtual classroom you may wish to demonstrate handwritten content that you would traditionally use a whiteboard for within a classroom.

First consider if you prefer to work with digital ink or using a standard pen and paper approach.

Digital Ink

Although writing with a mouse or trackpad is possible it is often an unnatural feeling for many people, with many preferring to use a stylus attached to a computer or used directly on a tablet device.

Both Collaborate and Teams have a whiteboard that offer some basic writing and annotation tools for whiteboards. These tools are often sufficient for quick demonstrations, but do have some limitations. It is important to note that any content created in the Blackboard whiteboard will be removed at the end of the session so a screenshot should be taken if

you would like a digital copy.

An alternative tool is to use OneNote, you can broadcast your screen when writing in OneNote, but there are two additional advantages in the way that the content can be shared to students, and the writing can be converted to Math writing.

A description for how to broadcast your OneNote in a Virtual Classroom can be found in this additional post.

Pen & Paper

It may be that the easiest approach is to use pen and paper, and carefully positioning a camera or additional video-source you can broadcast your paper to the room.

You can choose the video source that you wish to share in both Collaborate and Zoom, additionally you can choose to join a meeting from an additional device such as a smart phone to use this as your additional camera source.

With a small tripod and a well-lit workspace you can share your handwritten work to the rest of the virtual classroom.

Recorded demonstration to students

You may prefer to record your demonstration as a standalone resource. This can often make it easier to focus on the task without having to consider other aspects of the technology compared to running a live demo. Another benefit of pre-recording is that the resource can be used on its own in addition to any other teaching activity.

Screen Recording or Recorded Meeting

As above, you can record your demonstration using the same tools and approaches you would as if you were running a live session. You can record a session (without other participants) in Collaborate or Teams.

How to record and view your iPad screen on desktop

You could also use Media Hopper Create to record your screen of any demonstration taking place on your screen.

Camera and Tripod

Using a camera or smartphone you could record a demonstration on whiteboard, or pen and paper.

Point the camera to a piece of paper at a reasonable distance to allow space for handwriting, but still easily legible.

Notes & Tips

- Beware of autofocus trying to switch between focus of your hand and the paper, this should be relatively minor, and most phone apps allow a fixed focus if required.
- Use a well lit room, but watch out for glare or excessive shadows
- Should be relatively easy to colour correct the footage to white by doing a white-balance on the piece of paper (post production).

George Kinnear in the School of Mathematics has written a blog describing how he uses video to share mathematical writing giving a demo of how to do this using Teams.

On Campus Resources

Most teaching rooms have a high quality visualiser that can be used to broadcast/record paper and pen.

The University has also invested in a number of media recording pop-up studios which are equipped with the equipment that you will need for a high quality recording. Some locations have the option of a “clear board” to allow you to write on a transparent board allowing you and your writing to be visible on screen at the same time.

The studio spaces are bookable in advance and are being supported within current health and safety guidance. For further Information please consult the dedicated Media studios for hybrid teaching web pages.

Collaborative whiteboard tutorial

Using a whiteboard in a Collaborative tutorial it is a little harder to pinpoint a single solution. OneNote is clearly a useful tool as it has collaboration at its core in addition to the multiple handwriting tools.

It is possible to create a Class OneNote document and allow people to work on this as they wish. You could even distribute some proforma templates pages if there are specific tasks or formats you would like the students to follow.

The School of Mathematics recently held a workshop on a variety of approaches to collaborative working with whiteboards. This workshop has been written as a short report investigating how to “Share mathematical work synchronously”. In the report they look at filming their workspace, using an online whiteboard such as notebookcast.com, working on a

collaborative document like OneNote or using LaTex in an Overleaf document.

Variety of Tools

As you will have seen there are a variety of approaches to tackle this scenario. The ILTS team are happy to advise if you have a specific use-case that you are considering. I've listed tools and resources mentioned in this post as well as some alternatives. Feel free to add more to the list using the comments below.

Hybrid Teaching Technology and Tools Finder

- OneNote
- Blackboard Collaborate
- Teams
- Microsoft Whiteboard

Other tools mentioned by colleagues

- Padlet
- Explain Everything
- AWW
- NoteBookCast
- Ziteboard
- excalidraw.com
- WhiteboardFox