

# Teaching with Tablets

March 2015

Why use a tablet in your lectures?

In teaching you often want some mixture of formal methods – prepared slides or other documents – and informal, spontaneous material, hand-written or hand-drawn on the spur of the moment.

- Trying to use both types of method in one lecture can involve switching back and forth between the computer and the board, or between the computer and visualiser. This can be distracting.
- It is often convenient to write or draw on your documents – in the same way as if you were in a 1-to-1 with a student in your office.

Some universities invest in expensive interactive whiteboards to enable teachers to do this. But this technology isn't universal, comes expensive and takes time to get used to. What is more, you don't *need* fancy technology.

You can do most of what you need with your own tablet, hooked up to a projector. You use your tablet as a virtual chalkboard.

You don't have to be a computer whiz to make good use of your own tablet in enhancing your teaching. The purpose of this manual is to make it easier for you know how to do it; and the methods have been road-tested on a variety of tablets. Here is what we cover:

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And if you want the message in one picture – just go to page **12!**

## *Should I do this?*

When should you consider using a tablet for teaching?

- you want to highlight details of your presentation on the fly
- you want to give an interactive lecture, responding to questions by writing on the screen
- you want to encourage active learning by your students
- you want to short-cut the slow log-on and loading that is typical of teaching-room computers.

In addition, if you teach in a large lecture room there are further advantages. Maybe use a tablet if you need to:

- draw or write something on the board and your students can't see properly from the back rows
- point out detail in slides, but you find it is impractical to reach the screen
- highlight lecture material in a room equipped with a double screen

### Set-up

Before you start you will need to make sure of the kit required and the connection method that you are going to use.

Apart from your tablet (and the power cable that comes with it) here's the stuff you need...

- an adapter
- a connecting cable
- and, perhaps, a pen/stylus compatible with your tablet: for more, go to [Pens](#).

We deal with later with the presentation software you might want to consider: go to [Apps](#).

### Adapters

The adapter that you need will depend on

- the exact model of your tablet
- the connection method that you are using (see [Connections](#)).

It will cost from around £10 to about £40, depending on the make of tablet: This is one thing on which you will probably need advice in order to make sure that you have exactly the right gizmo. A few examples are illustrated on the right.

### Cables

You will need two cables:

1. You will already have the first: a *power / charging cable*. You'll probably need to have this with you for a one-hour lecture. It might be a good idea to have a spare stored permanently with your adapter (you will find that it plugs into the back of your adapter).
2. The *connection cable* that you will need to hook up from your adapter to the teaching-room console is standard, cheap and easily obtained. Sometimes there is a cable provided in the lecture room itself, but it's safer to have one of your own that you keep with your adapter.



Apple VGA adapter



Samsung VGA adapter



HDMI adapter (for Samsung)



power / sync cable



VGA ("RGB") connection cable



HDMI connection cable

## *Connections*

So, VGA or HDMI or perhaps something else...?

The key thing in teaching with your tablet is the connection method. You need something that is simple, reliable and universal. Everything else is secondary: you don't want to be worrying about the stability of your connection to the projector just at the precise moment when you are explaining a fascinating intellectual point while drawing on your tablet.

## *Cable*

Your cable connection options are as follows:

- The LSE provides VGA and HDMI ports in most of the classrooms. For more data input information, please check the LSE website:  
<http://www.lse.ac.uk/intranet/LSEServices/IMT/guides/campusComputerRooms.aspx>  
<http://www.lse.ac.uk/admin/timetables/confirmed/ttrooms.htm>
- VGA cables can only carry video, but not audio. So, if you just need to present slides, VGA will be fine.
- HDMI cables are able to pass audio and video over one cable. If you need to show a video from your tablet in class, then that's the connection method you will need.

This guide has been written assuming that the default option for making the connection is VGA. This may not seem like cutting edge technology (it isn't!) but...

- It is universal. If your teaching room is equipped for connecting your own device it will certainly have VGA
- It is reliable and stable in the lecture room.
- You can (and should!) road-test the connection in your own office by connecting the tablet to the screen on your desktop computer.
- You don't need any special apps / software to make your connection.

*Wireless?*

And what about wireless connection?

This is the way things will go eventually; but while wireless display/projection facilities are available in some teaching rooms, this is not – yet – a universal and reliable option. For example the LSE does not yet have wireless access to projectors in all the big lecture rooms. In those lecture rooms where wireless connection has been implemented it is accessed through something called Airmedia: unfortunately, this works through an app on the tablet, so you have to put docs into the Airmedia app and you cannot write on the slides. The projection quality is lower than with cable connection.

## Choices

A good way of seeing if tablet teaching is useful for you is just to carry out a trial run with the tablet you already have.

But maybe you are thinking of getting a new or additional tablet for teaching.

### Which tablet?

Many of the relative advantages the of the iPad family and of other tablets are well known. Here we just focus on their merits *as a teaching tool*.

- iPad
  - Advantages: There are many applications in iOS that are useful for teaching purposes. Usually applications in iOS are high quality and have a user-friendly interface.
  - Disadvantages: iPad does not have a built-in stylus / pen, so you might need to buy your own stylus (we have recommendations for you later – see [Pens](#)).
- Samsung and other Android tablets
  - Advantages: Several Android tablets are designed with a built-in stylus. Excellent examples of these are the especially Samsung Note 8 and Note 10.1 which come with an “S-Pen” that is very well integrated with all of the Samsung apps.
 

If you connect your desktop to your tablet with the charger cable you can transfer files just as though you were transferring to/from a USB memory stick.
  - Disadvantages: Some native Android applications are not as slick as those written for Apple; but see [Apps](#) below.
- Surface Pro/Other Win8.1 System tablets
  - Advantages: As with Android tablets there is easy file transfer to/from the desktop. The Surface Pro has a built-in stylus.
  - Disadvantages: There are fewer applications for the Win8.1 platform than for iOS and Android.



the S-Pen



Surface Pro Pen

## *Pens*

If your tablet does not come with its own pen / stylus, then you should seriously consider acquiring one as an add-on. This can considerably enhance what you can achieve in the lecture theatre.

Here is a brief overview of the stylus / pen options available for presentation purposes on various types of tablet.

- **iPad**

- because the Apple philosophy is that one should normally use one's hand on a tablet computer – and thus essentially rules out the provision of a built-in pen – some serious thought has gone into the development of a stylus that mimics, but improves on, the human finger.
- a particularly sophisticated (and pretty expensive) instance of this development is the Adonit Jot Script Evernote Edition Fine-Point Stylus. This is an active power stylus: you need to turn it on and to get full functionality you let it connect to the iPad through Bluetooth. This stylus has a sharp tip that would normally be too small for an iPad to sense it, but Adonit use a clever workaround. The Jot Script is a “smart” stylus: it can be used with any app on the iPad, even if Bluetooth is turned off. Irritating drawback: to save battery the pen shuts itself down after a period of inactivity, so you may need to keep switching it back on...



Adonit Jot Script Stylus

- **Samsung Note range.**

- the built-in S-Pen performs superbly, particularly on the Samsung 10.1. It has a fine tip and works well for accurate drawing and neat handwriting.
- it doesn't look as great as some add-on pens, but that really isn't the point...

- **Other Android tablets.**

- some of the other Android tablets have their own built-in stylus.
- for those that don't you might consider a “smart” active stylus such as the LynkTec Rechargeable Apex Stylus. This is battery powered and – as the name suggests – rechargeable. It is suitable for both iOS and Android and does not use Bluetooth: you just press the button and go...



LynkTec Rechargeable Apex stylus

- Surface Pro and other Win8.1 tablets.

- as mentioned the Surface Pro has its own built-in stylus
- in addition many of the new Windows tablets have their own built-in stylus

For all tablets that do not have a built-in pen consider getting a “dumb” add-on stylus such as the Wacom Bamboo or SAVFY stylus. These mimic your finger tip without leaving finger marks on your tablet. A bit primitive, yes; but better than finger-painting.



Bamboo stylus



SAVFY Stylus

## Apps

We deal with two broad classes of apps for presenting the material for your lecture or class.

### *Presentation apps*

- **PowerPoint 365.**

Maybe you gave up on PowerPoint years ago; if so, perhaps consider giving the recently released Office 365 version a try. It works as well on a tablet as on a desktop. So, if you want to use it when teaching with your tablet you have all the functionality that you would have when running it using the console computer. It is fully integrated with Dropbox and OneDrive. If you have an LSE identity then you are entitled to install the app free of charge on your tablet.



- **Polaris Office.**

This is bundled free of charge with many Android tablets and up until recently was the main way of running PowerPoint presentations on Android tablets. As a PowerPoint substitute it is OK with simple presentation files imported from your desktop, but misses out on a lot of the finer detailed features and it messes up some of the fonts. One particularly nice feature when running a slide-show is that instead of just writing on or highlighting the slides with coloured ink, you can run a little light over key features, in the same way as you might use a laser pointer on a screen.



- **Prezi.**

This is great presentational software, and a completely different approach from PowerPoint. Recently it has become possible to edit and launch your on-line Prezis from iOS or Android tablets. You need an account, but this is free if you are in an educational institution.



### *Working with pdfs*

If you're working with pdfs it is natural to think "Adobe Acrobat!" Well, perhaps.

If you are going to *teach* with your tablet rather than just use it to *read* pdfs, then there is a bit more to the story. An app that is ideal as a reader may have some drawbacks when being used to display slides. You need to check how easy it is to add and delete annotations on the pdf and how the app makes transitions between pages when you are using it to present slides.

No single app proves to be a winner over all, but from among the many, many available pdf readers for tablets, here are a few that stand out:

- **Adobe pdf reader.**



- Available on the majority of tablets
- Easy to write / draw on the pdf
- Easy to erase annotation
- Slide / swipe to turn the page
- An irritating snag is that it has a built-in transition effect when it is moving between pages. This effect cannot be removed. So, if you create dynamic slides (using Beamer or Powerdot, for example) then as you reveal each bullet point there will be a distracting page-turning animation.

- **Moon+ Reader Pro.**



- Designed for Android tablets
- Easy to draw on the pdf but erasing annotation is tricky
- Tab to turn the page
- Transition effects are optional, so you can have a cleaner presentation.

- **PDFpen.**



- Designed for the iPad
- Functionality is similar to Adobe pdf reader

- **Drawboard PDF.**



- Designed for the Surface Pro and other Win8.1 tablets
- Functionality similar to Adobe pdf reader

*Getting ready*

You have a great advantage with a tablet. Rather than loading your files on someone else's computer at the beginning of the lecture you can prepare everything exactly as you want it before you leave your office. You can use the screen of your desktop computer for a dry-run to check out the routine set-up of your kit (see [Set-up](#)).

- **For the dry run.** Check the connections of power source / tablet / screen. Connecting in the following order is usually reliable (see figure on the following page)
  1. connect the power source to the adapter using your tablet's recharging cable
  2. connect the screen / projector to the adapter using the VGA / RGB cable
  3. connect the adapter to the tablet
  
- **Then, for each lecture:** before you arrive in the lecture hall...
  1. Check that all the files you need are available locally on your tablet (not in dropbox or elsewhere in the cloud)
  2. Restart the tablet from cold (this way you won't have other apps competing for resources on your tablet during the presentation)
  3. Switch off the wifi (eliminates distracting interruptions during the presentation)
  4. Load the presentation / slide to the exact point where you want to start
  5. Check you have: adapter, recharging cable, RGB cable, pen.

... and you're set!

- **In the lecture hall**
  1. Activate the projector: select "laptop" connection
  2. Connect up the kit exactly in the way you did it in the dry run
  3. Wake up your tablet: your prepared slide should display on the screen
  4. Get your pen/stylus ready for action



Connecting your kit:

1. Power to adapter
2. RGB (VGA) to adapter
3. Tablet to adapter

*Teaching with your “virtual chalkboard”*

Experience suggests that it is useful to plan ahead to make full use of standard tablet functionality

- enlarging
- highlighting
- annotating

It’s easy to do this if you have the tablet at a comfortable height on the speaker’s lectern. A stable physical platform reduces the risk of connection problems while you are speaking or writing on the tablet.

Anything that you would normally have done on a whiteboard can be conveniently done using your tablet as virtual chalkboard. Here are a couple of ideas:

- One of the hardest things to get right on a white board is a nice straight line. So, keep a simple plastic ruler next to your tablet. Then see how easy it is to draw simple, neat diagrams, axes for graphs and so on. Just lay the ruler across the screen and use your stylus like it was an ordinary pen.
- Special shapes and curves can be handled in a similar way with cheap plastic tools.

Finally, you can use the tablet approach to encourage active learning through note-taking by your students. If you let the students have access to the PowerPoints or pdfs that you use in teaching then, why not get them to use tablet technology too? If they bring their tablets along they can page through your slides in Acrobat or other free software. They can annotate or highlight your notes. It saves lots and lots of wasted printing .




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This guide was prepared by Frank Cowell and Xuezhu Shi

[f.cowell@lse.ac.uk](mailto:f.cowell@lse.ac.uk)

Department of Economics, LSE.

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