PDI – Club Projectors

Having been involved on the Federation circuits as a lecturer for over 20 years – I am somewhat surprised at the lack of knowledge within many camera clubs that I have visited of late about the capability and performance of the *"Club Projector"* for projecting digital images which have now become the norm.

In the days of the 35mm slide – there were only a few options – Projection was by Kodak Carousel or the universal Straight Magazines and it was a rocker switch that gave you full or reduced power to the lamp – usually used at start up so as not to blow the bulb – then it was just a case of filling the screen if it a was zoom lens and focusing largely by eye or a specialised focussing slide and away you went.

When Digital projection first came to the fore it was somewhat of a novelty – with only the few clubs who had the funds or could get a grant from a local organisation or the heritage lottery fund – who could afford what was a big investment so much so that there were rarely stored along with the clubs equipment in a cupboard in the meeting room but taken to the sanctuary of a responsible members home for safe keeping until needed again.

The early projectors were all mostly 1024 x 768 pixel resolution and were as good if not slightly better and brighter than 35mm slide projectors. Connection between either a PC/MAC or Laptop was generally through a 15pin **VGA *(Video Graphics Array)*** which was originally adopted from a computer display standard for the 640 x 480 resolution CRTV Monitor.

This method is an analogue connection and whilst adequate it still seems to be the norm for some clubs today but this does not support the higher resolutions and options for connecting that are available in the latest second and third generation projectors that are now available.

I have the feeling that because most projectors come with that connection cable supplied as standard – they never get to investigate any of the other ports available on their projectors.

Most clubs now have a data projector available for lecturers to use either owned by the Club/Society or by courtesy of one of their members – but unfortunately many have not moved on and embraced the technology available to get the best out of them.

A lot of clubs have taken the lead from the Federations and PAGB and have purchased one of the "**CANON"** range that can cost upwards of £3000. At Peterborough PS we now have an **"SX80 MarkII"** – this if you include the USB port has four ways of connecting to what most lecturers use now for lectures – a good quality fast 64bit laptop.

Firstly we have **VGA** – which I have already covered. Next up from that is **HDMI** ***(High-Definition Multimedia Interface)*** – which for some unknown reason has hoodwinked the

unwary into thinking that by implication “High Definition” makes it a better method. What it is in fact is a compact audio/video interface that is a digital replacement for existing analogue **“VIDEO”** standards so is not really ideal at all.

This has an inherent problem especially with CANON projectors – which if you do not go into the HDMI menu and disable *(turn off*) the “OVER SCAN” – your images are projected with disorders – with their peripheral section trimmed off. *(Only The central 95% of the image is projected.)*

This brings us to the preferred option **DVI** (**Digital Visual Interface)** a video display interface which can be configured to support multiple modes such as DVI-D (digital only), DVI-A (analogue only), or DVI-I (digital and analogue).

By its very description “Digital” is a true Photo mode – not all laptops have a DVI output port – but that should not put you off as the issue is not the output of the laptop but what the input is to the projector. I have now purchased an HDMI to DVI cable which does exactly that. So long as I am using the DVI input of the projector, the Photo mode becomes available and Overscan is disabled. Therefore it doesn't matter what's at the other end!

Recently I lectured at a club that had upgraded from their original projector to a newer one from the current EPSON range – the particular model they bought has two HDMI inputs - common for 1080p projectors - which is essentially the same standard as DVI (and Display Port, for that matter). It's possible to get converters from one to the other – so no problem getting a digital connection to it although it's clear that this is not a projector really aimed at the photographic market.

To touch on **USB** – or Universal Serial Bus is a type of computer cable system that was designed to allow many different types of devices to connect to computers. Nowadays USB devices such as portable hard drives and memory “sticks” can connect up to projectors as an easy means of transferring data without needing to use a laptop which can then be shown using the projectors built in **Viewer**. USB was designed to replace serial and parallel ports and is frequently used for computer peripherals.

Once the Data Projector recognizes the USB memory device, **Viewer** will start up automatically and a menu of the files contained on the USB memory device will be projected in the projection area. Viewer will not start up automatically if the Data Projector’s plug-and-play feature is turned off.

Only files of formats that are recognized by the Data Projector (jpg, jpeg, jpe, bmp, avi, mp4) will appear in the file menu. Note that even if a file appears in the file menu, it does not mean that the file can be displayed or played back by the Data Projector.

Having established what the best connection process is only half the story – you then have to comprehend how to project correctly the images using the colour management process of the connected PC/Laptop.

So let us deal with Colour Space first – The default in Photo Shop is: **sRGB IEC61966-2.1** whereas **Adobe RGB (1998)** is commonly used for image editing and ICC profiling for Printers.

The **sRGB** colour space has a much smaller range of colours but is used on almost all Internet sites and by digital projectors. If you try to project an image that is in the **Adobe RGB (1998)** the projector will try to find matching colours but is not always very successful in doing so.

Most colour management errors in Photoshop come from using **"assign"** profile where one shouldn't. **If "convert to" profile can be thought of as translate to, then "assign" profile is interpret as.**

To use a book translation analogy, assigning a profile is like choosing a language that you think the book was written in. If you choose the wrong language; i.e. a different one than the author used to write it, you cannot accurately translate its meaning.

In colour management assigning a profile keeps colour mode numbers the same to the image file, which means that it also changes the file's colour meaning. This can be a big problem because all profiles and colour spaces of a particular colour mode use similar sets of numbers to denote colour. Whereas converting a profile translates colour meaning from one profile to another, changing the colour mode numbers.

If you select to leave it in RGB then the projector will try to find matching colours but is not always successful in doing so.

What is then needed is the "PROFILE" for the PROJECTOR (*that should have been created and saved if the projector has been calibrated?)* – Installed onto the Laptop – then set as the default in "COLOUR MANAGEMENT" after it is connected the Projector. Once that is done they will talk to each other and render the same or very similar colour detail on the monitor and screen from the colour space the images were saved in.

What about the monitor? – What we are looking here is about projection – so the only time you need to have a properly calibrated monitor is if you are doing some editing on the monitor – and if you want it to look the same on the screen then you need to connect it as I said with the projector profile.

Since I went Digital for lectures – I have only had one club out of the hundreds I must have visited contact me beforehand with a projector profile to install onto my laptop.

None of this will have any real consequence as to what is shown on screen – if you do not utilise one of the many packages around which will project with the correct colour *(Film Free Projection being perhaps the obvious choice*) so there's absolutely no excuse to have bad colour reproduction.

I have recently returned from judging one of the UK's Federation's Annual DPI Exhibition which was shown to us judges in "WINDOWS PHOTO VIEWER" – I do not know a lot about this but I know enough that you should never use it! It is strange in that it *does* obey the embedded colour profile but always renders everything way too dark and saturated.

This is a well known problem and it's a complete mystery to me that Microsoft still hasn't fixed it. It has been suggested by an expert in this field that they may have been misinterpreting the monitor profile - possibly even double-profiling; but, whatever they were doing, *it was wrong!!*

Perhaps it should be left to the PAGB & its Federations to consider putting together some practical guidelines on the choice of projectors and projection processes – in this ever evolving world of technology where you buy today but it can be out of date tomorrow – so that we can all have a better idea of how to get the best out of our images when shown on screen.

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