

Interactive Whiteboards: an approach to an effective methodology

The context is a familiar one for the classroom: a teacher stands in front of the board and uses it to illustrate a learning point to the class. However, if the board is in fact the screen of a computer, two things change: the familiar board-teacher-class context *and* the use of computers as a learning tool.. The problem has been that lessons planned for the new interactive whiteboards have been based either on traditional board use, or a methodology borrowed from conventional use of ICT seen as a solitary learning device. Combining these two approaches demands a fresh methodology

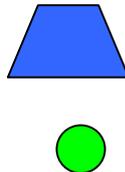
We need to look at the potential of this technology to enhance the best aspects of both approaches, and then explore where something entirely new is made possible.

In the diagram below I've sketched a typical whole-class teaching context. Two things distinguish this scenario from the usual computer-based lesson:

1. the whole class can participate;
2. there is a teacher actively mediating operating between the class and the computer screen (in this case the whiteboard).

Traditional Solitary Computer Use

Computer Screen
(*Computer has to do everything*)



Unmediated Interface

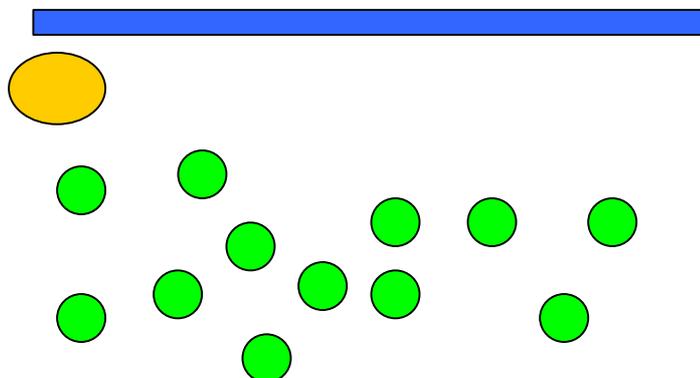
Pupil

Whole Class Teaching using an Interactive Whiteboard

Whiteboard
(Computer)

Teacher
(*Participates in the lesson actively*)

Pupils



Teacher Mediated Interface

The implications of this context are many:

- the material doesn't have to be right or wrong in the usual, restricted, black-or-white, binary way of computers. Nor does the computer need to indicate whether something's correct – the teacher is there to cover that aspect of the lesson and she/he can withhold the answer or allow erroneous lines of thinking to progress, perhaps to allow pupils to develop their own logical approaches. **Materials for an interactive whiteboard do not have to indicate correct or incorrect – they should be left open** (correct answers can be supplied in the teachers' notes if necessary)
- The materials do not need to be complete – indeed, if the picture is heavily filled-in there will not be as many opportunities for class discussion. **Ideally there should be deliberate gaps introduced into the lesson – learning spaces - to give room for teacher and pupils**
- **Add direct questions in the text on screen** that can only be answered by the class and the teacher – an open-ended approach. The questions can act as a simple guide to the issues the teacher wants to raise at various points in the lesson. The words on screen focus the whole class on the question – but the answer must be supplied through discussion and response – it can't be stumbled upon by random clicking around the screen.
- **Don't design whiteboard materials that 'do everything'** – if you do, the lesson will have 'failed' in that the teacher is, by definition, excluded from the process, except as a clicker of buttons and driver of the software. Allow for, and celebrate, the expertise of the teacher.
- **Design lessons where the use of markers can enhance the learning experience.** Again this requires the authors to create deliberate gaps. An example might be the use of blank maps in Geography or History so that the class together fill in the information, and the understanding grows from that process
- **Involve the class.** There are multiple opportunities for enjoyable class participation with whiteboard technology, but the materials need to be designed consciously for that effect. Ask students up to the front to participate. Possibilities include a semi-competitive activity where two groups compete through two representatives at the front of the class.
- Don't think only in linear ways. **Use links and hypertext creatively.** It is possible to follow a linear path through a subject for part of the lesson, then reach a crossroads where there are several branches. A computer can easily be programmed to provide those alternative routes, and make each choice a vivid experience. You can explore alternative takes on a single issue this way, providing the class with dynamic decisions as you proceed.
- You can use loops as well as hypertext links – so that you design a return to material already covered. Another break from the linear lesson.

Design Parameters:

- **Visual lessons.** There is a huge range of visual images available on a computer and they are enhanced by introducing movement (this often gives an astonishingly powerful boost to understanding), and through the sheer scale of the image when it's projected on screen. The trick is to design lessons that exploit the power of images – maps, mathematical concepts, art diagrams.
- **Learning styles.** Interactive whiteboards can support the full range of learning styles. The greater the participation by the class, the greater the reinforcement through kinaesthetic input. When students can generate input to the process, by moving an image into a sequence, by activating a routine or by conventional methods – keyboard, mouse etc. – learning is more powerful, and reinforced for the whole group. Where a range of possibilities can be tried, with immediate outcomes generated, ensuing discussion takes students beyond the scaffolding of proximal learning and moves them all to a new level.
- **Pause, Forward and Back in animations.** In the context of an Interactive Whiteboard, the teacher needs to have delicate control over a moving sequence – to stop it mid-movie, to run backwards or forwards as the needs of the class demand. This will enable discussion to be at the discretion of the teacher.
- **Number and letter input.** Inputting numbers or letters can be fiddly if you have to find the computer keyboard. It would be better if the inputs were designed onscreen.
- **Sequences of activities.** The computer lets the lesson-creator assemble a series of linked activities to explore, or reinforce, specific learning objectives. The navigation through these activities can be designed with the whiteboard lesson in mind – especially the ability to backtrack and loop.
- **Whole Class Activities that work independently of the teacher.(See below).** Role play activities have been a staple of computer-use since the first BBC-B's entered schools. One machine can drive an entire group. An Interactive Whiteboard offers the chance to broadcast information to the whole class, working from desks. Occasionally there may be a call to decide on a course of action, vote and continue. The huge screen even looks like Mission Control! Designing for such applications is going to be interesting – perhaps dividing the screen into independent quadrants each updating different aspect of the same scenario!
- **Timings** (eg permanence of objects on screen) – mouse-overs should not be used unless they form part of the teaching technique. In general, unless the teaching strategy makes you want to cover or evaporate objects on screen, avoid elements that flash on and off the screen. These do not work on a big screen.

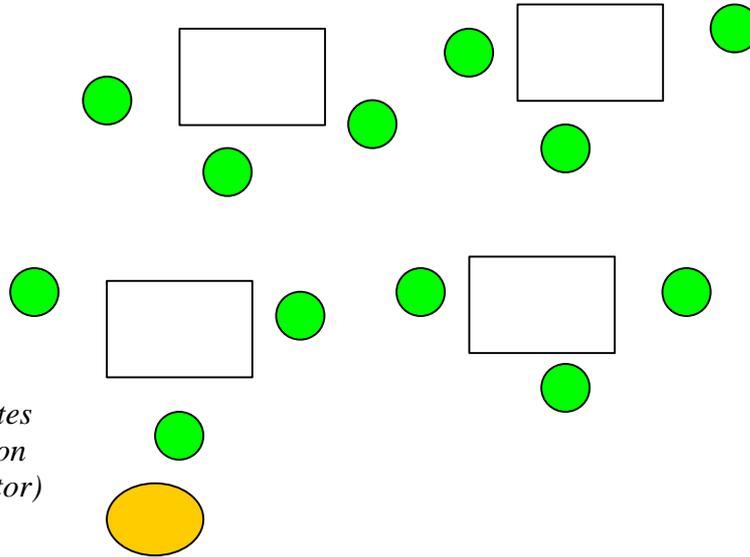
Whole Class Teaching using an Interactive Whiteboard

Whiteboard
(Computer)



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Pupils



Teacher
*(Participates
in the lesson
as facilitator)*

Unmediated
Interface – computer
drives lesson.

NB class arranged
round desks so that
they can see the
whiteboard.

Messages occur in a
timed sequence that
effectively manage
the lesson.