We didn't do that at our school! :- Evaluating Interactive Screen Experiments (ISEs) for teaching practical science skills

Why is this research necessary?

18 students, 15 different feeder schools

Students arrive at college to study science A levels having studied a number of different level 2 science courses

Assessment objectives typically include 30% weighting to 'How Science Works'. This means that a significant amount of the exam marks are based around practical skills

Relatively large AS groups can make individual practical work unfeasible ; lecturers state time restraints as a barrier to the number of lessons devoted solely to experimental work.

Data collection

In a pilot study the AS Biology class was randomly divided, one half of the class worked on some directed study and the other half worked through the ISE.

One week later the class were all given an apparatus and measurement exercise

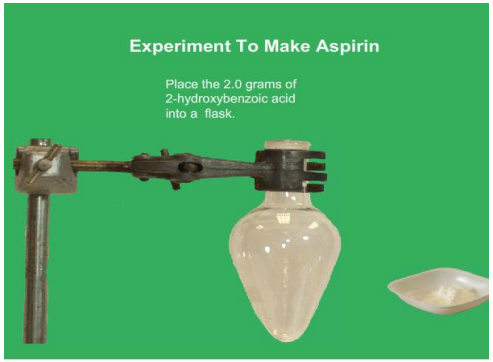
Later all the members of the class now revisited or familiarised themselves with the ISE resources. In pairs they discussed and then wrote down positive and negative points of using an ISE, these points were collated. Finally all of the captured comments were put together and returned to the class, each student was then asked to highlight the single most important comment to them.

Initial findings

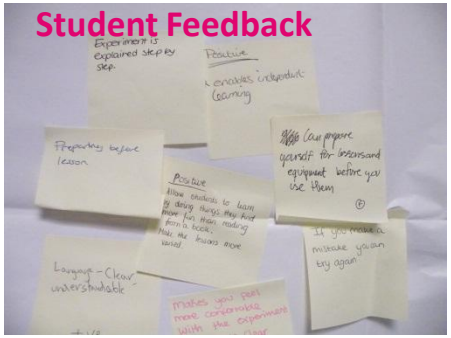
Apparatus and Measurement Exercise

	Average number of marks achieved/out of 18	Percentage score
No use of ISE	10	56
Use of ISE	11.3	63

What is an ISE?



Student Feedback



Initial Findings

- During the pilot study the experimental group were more able to accurately measure volumes, weigh substances, name apparatus and read balances
- There was a large variety seen within the summary comments, of the 17 responses collected only 3 were chosen by more than one student as being the most important
- Of the 17 responses the most popular was 'confusing, you can do the same section many times accidentally'.
- Nine of the responses highlighted a positive aspect and eight a negative.
- Eight different positive features were chosen and five different negative ones, of these five, three points related to the technical/visual aspects of the ISE.
- Many of the positive comments did allude to the opportunity to prepare in advance for an experiment or building up confidence

Themes From Student Feedback

1. Confidence/Familiarity/ Preparation

2. Design of the ISE

'Can prepare yourself for lessons and equipment before you use them'

'Easier to remember equipment'

'Makes you feel more comfortable with the experiment'

'They are good as they are interactive and show you in detail what is happening'

'Enables independent learning'

'You have the chance to try again if you make a mistake'

'Tedious, removes fun from practicals'

'Boring and unclear pictures'

'Confusing- you can do the same section many times accidentally'

Conclusions

-The ISEs are a useful tool

-We need to get to know our students better (summer activities)

-We need to change our induction process

Project Researcher: Sarah Marshall
Email: Sarah.Marshall@newdur.ac.uk