

## Assessing ICT

What are the issues surrounding the assessment of ICT (information and communications technology, or educational technology)?

By Terry Freedman

See also: <http://www.ictineducation.org>

### What is ICT?

The first issue is: what exactly are you seeking to measure? The answer is not obvious, because there are so many facets of ICT. What do **you** mean by ICT? Is it a set of skills, or is it a form of literacy? The less skills-centred your definition, the harder it will be to assess a student's ICT capability. That is not to say that you should plump for the easy option, but forewarned is forearmed.

### Product vs process

This will seem like an obvious point, but it's important. ICT, however you choose to define it, is a process that leads to a product. So, if you assess only the end product, you miss a crucial component of the whole thing.

For example, a document may look beautiful and be perfect in terms of spelling, but without observing the process that the student went through, how can you make a sound judgement of the end result? After all, the student may have used a template that left no room for manoeuvre in terms of making mistakes!

Here's another example. How can you tell, just by looking, that a spreadsheet is fully functional? I once had the experience of sitting with a student and asking him to change a number in his spreadsheet, which he did – and nothing happened. On closer investigation I discovered that he had entered only numbers and text into his spreadsheet, not formulae: he'd done the calculations with a calculator and then typed the results into the spreadsheet.

That raises another issue, of course: he clearly did not understand the **concept** of a spreadsheet. How might I have picked up on this earlier?

It would, however, be a mistake to take the view, as some people do, that the end product is unimportant. Think of any situation in real life when you have had to use information technology: the process was important, but so was the product – or why were you even using the technology in the first place?

Here's a case in point. I am writing an article about assessment, using a word processor. If the end result is a perfectly formatted, error-free and visually attractive article about bee-keeping, how would you rate my ICT capability?

The answer harks back to the first issue identified, namely: how do you define ICT? If you define it purely in terms of skills, then the end product is indeed irrelevant. But if you go beyond that, and introduce elements like working with others and working to a brief, then the product cannot be irrelevant.

### Snapshot vs movie

Another issue to think about is this. "Doing" ICT is a process, as already said. Summative assessment often takes the form of a test of some description. Unless the test has been very cleverly constructed, you are in effect using a still camera to record an event that can really only be captured properly by a video camera.

To some extent, this problem is experienced in all subjects, of course. What is required, ideally, is some way of gaining insight into the process that the student went through. There are various proxy ways of doing this.

For example, it is important for the student (or her teacher) to store not just completed (and presumably, perfect, work), but also a sample of the intermediate versions, including annotations.

Another option is for students to write or otherwise record a commentary on the process they went through.

Some of the process might also be captured in the form of recordings of Skype conversations or face-to-face discussions, and transcripts of forum or Instant Messaging conversations.

### Some ideas for Assessment for Learning in ICT

#### **Rapid feedback**

- "short, sharp" tests: a quick test on knowledge, such as terminology or whatever, can be used to provide quick feedback to both the pupil and the teacher.
- skills tests, or knowledge of skills tests. These would be to test whether pupils know how to do things like change font size. Could be either paper-based or electronic, and if the latter could be marked automatically.
- "Awareness" tests. These to check pupils' understanding of **when** to apply **which** skills/techniques.

All of these so far listed are for the purpose of getting fairly quick feedback on where pupils are in terms of their basic knowledge and understanding. They provide a kind of snapshot. The next set are more to do with **process**, and ought to form part of teaching materials in an ideal world.

#### **Process**

- Self-assessment, including questions like: "What do you need to do next, and what do you need to do/learn in order to be able to achieve that?" (but expressed differently, obviously!). It should also be reflective/dynamic. Eg, rather than ask, "How do you think you did?", or as well as that, it should ask "What did you do, why, how could you have done it differently/more efficiently? etc etc)
- "Visual checks" eg traffic light system. "These visual checks could easily be electronic, could be adapted to a variety of topics/processes/skills and could be undertaken in 5 or 10 minutes by pupils themselves, at any time.
- Peer assessment, eg looking at presentations by other pupils/groups at the end of a module or unit of work. The materials could consist of guidelines/questions for pupils to consider. I think there is also scope for getting pupils to work out the criteria for themselves, because that process in itself would lead to learning (or at least has the potential to do so).
- guidance to pupils on annotating their work, either electronically or on paper, and keeping versions from draft to finished product.
- guidance to teachers on commenting on work rather than simply giving grades.
- Guidance to teachers on questioning: most teachers spend most of most lessons answering questions which they then answer themselves after just a few seconds! Also, questions should open up knowledge and understanding, not constitute a kind of guessing game.
- Activities that involve pupils in dialogue about their work, whether with peers or teachers.
- Diagnostic assessment, especially for teachers – might use student response systems.
- Tests or activities that give an indication of level, and which can therefore contribute to summative assessment. In this regard, the idea would not be to take the place of summative assessment but to be able to provide an indicator of the level a pupil is likely to obtain, other things being equal. If the test provided a report on **why** the level was indicated, it would enable a dialogue between pupil and teacher to take place.
- These are not, of course, mutually exclusive.

#### **Tests**

- easy to set
- available when ready
- electronic or paper-based

- if electronic, automatically marked
- highly focused, eg a particular skills set, or database terminology, to provide a quick check on understanding etc
- interesting to do
- not passable just through general knowledge, literacy etc
- some tests should indicate the level at which a pupil is working
- related to above item, could be highly focused on aspects of the ICT process, such as finding out.

**Non-tests**

- should encourage dialogue
- should encourage reflection on the process, not just the end result
- should require pupil to **do** something, such as plan next set of skills to be learn
- should facilitate annotation of paper-based work, and/or amendments and saving different versions of electronically-produced work