Stop Watch

Robin James describes how peer assessment can be promoted with short, self-made films

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I'd like to start with a 'thank you' to the Swiss delegate who I met at PSEC in Edinburgh. He attended my workshop, *Looking For Learning*, about the assessment technique that I will describe here. *Looking For Learning* was the name chosen for my PSTT-funded project from which this technique was developed.

The name described the project well, but the actual technique needed a name of its own – certainly one catchier than 'CIVFF' (child-initiated video freeze-framing), which was the name used during my Master's thesis. My Swiss friend suggested *Stop Watch*. Yes, I thought, perfect. For, in essence, it is simply that: you stop a film that the children have been watching in order to ask them what they've noticed. However, as with most apparently simple things, it will require a little more explanation.

The filming stage

Let's face it, practical science – indoors or outdoors – can sometimes be messy. It can also be over in a flash, though not literally, we hope! Children are usually excited at the prospect of getting 'hands on' and the social challenges that this entails for them shouldn't be discounted. A lot may happen in a practical: planning, setting up, observing, recording, for example. There are often external distractions too – there always are with children! – to the extent that it may even be possible that an individual just wasn't looking at the right thing at the right time. They missed it! Wouldn't it therefore be a good idea to capture the action of a science practical on film? That was the starting hypothesis from which the *Looking For Learning* project evolved.

In my PSEC 2019 workshop, I explained how the idea for the *Stop Watch* technique originated from a lesson that I taught with local geography expert, Dr. Margaret Mackintosh. She introduced me to the 'Passive Observer Technique', which QCA (2007) describe as '*clips filmed with sights and sounds but no commentary as if watching the world go by...*'. We watched a short film showing a street outside Serekunda Market in The Gambia.

Still from Dr. Mackintosh's original 'passive observer' clip of a street in Serekunda, The Gambia

On second viewing, individuals could request that playback was paused or freeze-framed in order to comment on something that they'd noticed: the unexpected parked Mercedes, the little boy selling green oranges on the dirt road – that sort of thing. Plenty of valuable talk was generated, which is why, a few years later, I wondered if the technique could be adapted to a science context.

We experimented with a range of models: different group structures; film that had sound and film that didn't; films made by children compared with those made by adults; different lengths of clip; and different foci for the camera operator, e.g. on faces and hands, or just on hands. In the end, we developed a set of guidelines both for the 'Filming Stage' and the 'Viewing Stage'.

At PSEC, delegates made their own short film of a simple practical involving ice, salt and string. The challenge was to lift a block of ice with string using a little salt to melt the ice in contact with the string before it re-freezes. Each group had its own filmmaker, using a mobile phone or an iPad to capture the action. 'Short' is the key word here. We found that there's an optimum film length and it's not ten or even five minutes: it's two. Any longer than two minutes is likely to prove tiresome to watch at the Viewing Stage, whereas any shorter is likely to provide insufficient material for comparison and discussion.

Five things to remember when filming:

1. Try to film hands rather than faces – film as close up to the action as possible.
2. Keep it short. Two minutes of filmed footage is plenty. Use the pause button if you need to.
3. Don't worry about what's said: the idea is to watch the film back without sound.
4. A child can do the filming, but we noted a tendency to switch focus if adults come into the vicinity – particularly our STEM Ambassador (regarded as the fount of all knowledge!). It tends to work better if an adult films.
5. Aim to film at least two groups carrying out the same practical. This is what provides the impetus for purposeful talk and a good peer assessment opportunity.

Same task, different outcome

The *Stop Watch* technique is all about comparing and discussing the slightly different approaches that groups take when they conduct the same experiment, even when all have been given exactly the same resources. 'Same task, different outcome' became a mantra for our project. In science, however, might we not expect the outcome to always be the same? Isn't that the point of a practical – to prove that a particular phenomenon works exactly the way that science tells us it should? Well, no, at least, not always. Instead, we might set out to explore – endeavouring to find out what we (i.e. the children) don't already know. We found that the *Stop Watch* process worked well across the primary age phase. Very young children, for example, might be tasked with insulating a precious ice egg using a range of materials. The approach that one group decides to take will very likely differ from that taken by another.

The Viewing Stage

Dialogue is really stimulated when one group sees how another approached the same task. It might not have been at the same time, or even on the same day. (In fact, I'm interested in exploring in future research what happens when groups in different schools – in different countries even – compare notes on the same task.) The Viewing Stage takes place in a calmer, cleaner environment (which may, of course, be the same location after a clean-up). Outdoor science can be re-experienced and reflected upon indoors.

Vital to the process is that the groups don't see (at least not too closely) what the others have done until the Viewing Stage. '*Oh, they did it that way!*', '*Why didn't we use the metal one?*', '*See, I told you that would happen*' are the typical responses that you hear when groups watch how others approached the same task. As an example, PSEC delegates were surprised by the ingenuity of one group who chose to sandwich the string and salt between two cubes of ice. The ensuing talk can be insightful, helpful and revealing as to children's understanding of a scientific concept.

Peer assessment may be further enhanced if the objectives of the lesson are revisited before the Viewing Stage. With a little steering of the talk, a little training in how to phrase feedback in the kindest way and some time spent going over learning objectives, the teacher should find that the children are quick to offer helpful feedback to their peers. Furthermore, if the teacher is strategic with grouping, even more may be revealed. Three different groups (male, female and mixed-gender) took very different approaches in our small sample. We also grouped by 'utterance', separating those who are frequent contributors to class dialogue from those who are not. At the Viewing Stage, each group listens to the responses of others to their film before responding themselves.

Warming-up words

While on the subject of 'utterances', we discovered the value of vocabulary warm-ups. Before watching and discussing each other's films, children played short games to jog their memories about words and meanings. Games such as Kim's Game (which word is missing from the set?) and Throw, Catch and Say games with a ball proved popular.

We found that this encouraged children to use recently learned scientific terms more readily. Even Nobel Prize-winning physicist Richard Feynman noted (1983) that '*the deeper a thing is, the more interesting it is*' and therefore challenging to explain. Magnetism was the example he cited. Children (and adults) often substitute gestures for words, we noticed. This struggle to find words is a particular problem for children from socially disadvantaged backgrounds, as James reminds us (2013).

Five things to remember when viewing

1. Show a two-minute (max) film of one group's work to others who did the same thing.
2. Show the film without sound. Silent playback focuses eyes and minds on what's happening.
3. Watch the film through once in its entirety, without pausing, then watch it a second time, freeze-framing whenever a child who wishes to contribute says 'Stop!'.
4. Allow the filmed group and others to respond to feedback, but limit the interaction to three or four exchanges so that the pace of the playback isn't lost – and, obviously, don't allow more than one child to speak at the same time.
5. Ideally, if you have time, allow each group to watch their own film back beforehand (without others present) in order to review and discuss their own learning, before they compare their own approach and results with those of another group.

We tried other ways of pausing the playback, including lollipop 'paddles' with sentence-starter prompts on them such as 'I noticed that...'. Nothing, however, seemed to work so well as a simple shout of 'Stop!'.

Where next?

- Recording the discussions that result from the use of *Stop Watch* works well. One misconception, for example, out of 22 potential 'next step' investigations revealed in one recording suggested that magnets don't work in the dark. Although you're unlikely to have time to transcribe the recording, you can at least listen to it again.
- You might select from these ideas to create your own Concept Cartoon.
- Allow groups to choose one of these ideas to investigate next. Alexander reminds us that 'outstanding' assessment practice allows children time for '*reflective thinking, especially as they planned their own investigations*' (Ofsted, 2013, p.16).

Concept Cartoon showing 6 of the 22 investigable ideas that four Year 3 (age 8) girls had about magnetic force

Issues around the evolving technology

We're all filmmakers these days, aren't we? Hands up anyone who hasn't used a mobile phone to film something in the last month, if only a 10-second clip of your cat chasing a strand of cold, cooked spaghetti! Technology has provided us with an abundance of whizzy, pocket-sized multi-tools in the shape of our mobile phones. Who, apart from my mum, uses their phone primarily for making phonecalls these days? They're calendars, timers, alarm clocks, radios, maps, compasses, barometers, address books, bird and plant species identifiers, constellation spotters and even wallets. They're useful. They're personalised – a precursor perhaps of the direction in which the wider field of educational provision may need to develop?

Technology has developed apace. Just 20 years ago, the sort of videocamera, AKA camcorder, (if you were lucky enough to even have one) available in schools could put your shoulder out, or reduce you to tears if someone (no names mentioned, Mrs B!) recorded an episode of Eastenders over several weeks of filming for a school news bulletin. Then, along came the Flip camera in 2006 and, for only £70, every teacher could become a filmmaker. Flip, however, fell victim to sky-rocketing smartphone sales only five years later.

My own early adventures as a filmmaker using a large camcorder at Oulun Normaalikoulu, Finland, 1994

The ethical and safeguarding issues that have arisen around the use of this readily-available new technology are legion. In 2018, for instance, students in France were banned from using phones, tablets or smart watches in school and many English primaries forbid their staff from bringing personal devices into work. My school permits the use of personal mobile technology, providing that teachers agree to occasional monitoring of images. You may be lucky enough to work in a school that provides its own filmmaking devices, such as iPads. Digital learning journals, such as Seesaw, are widely used and facilitate regular sharing of photos, film, text and weblinks with parents. Whatever your personal view may be on these issues, it's vital that you find out first about your particular school's policy on the use of film, photography and mobile technology, and that you follow this carefully.

I think we can agree that filmmaking technology is far more accessible to teachers than it was just 20 years ago. And I hope that, if you're able to try the *Stop Watch* technique, you'll find it a simple and effective way to encourage peer feedback and discover, as we did, unexpected outcomes that point the way to future investigations.

References and further reading

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