CREATIVE LEARNING THROUGH FILMMAKING

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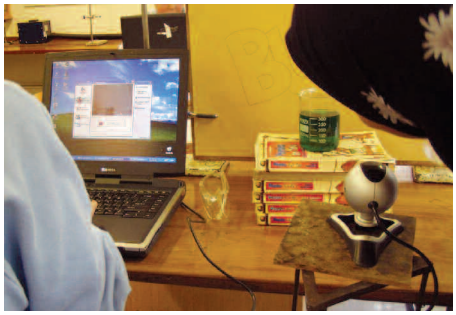
Creative Learning Through Filmmaking – The moving image is an increasingly essential part of students' everyday communicative repertoire, whether they are using simple webcams or high-end digital video. This talk presented a range of examples of video technologies and media approaches enhancing teaching and learning across the whole curriculum, from Science to Dance, from Maths to Geography, and across all Key Stages. It argued that video production can provide a model for the personalisation of learning, for the effective development of higher-order thinking skills and – importantly – for putting creativity at the centre of learning.

FILMING SCIENCE

During my keynote speech, I outlined a number of projects in which students at the Parkside Federation (two 11-16 secondary schools in Cambridge) engage in filmmaking across the curriculum, as a powerful way of developing subject learning, as well as of developing their cultural, critical and creative film-literacy. I spoke about a GCSE Dance project in which students choreograph, perform, film and edit their own dance films. I then described a Year 7 project in which Geography students animate volcanic processes. Finally, I showed examples of films made by Year 9 students about their experiences on a Duke of Edinburgh expedition.



This article, however, describes just one project, in which Year 8 students make science films, some of which can be viewed at www.parksidemedia.net. Working in small groups of about four, they use simple webcams to film bench-top procedures from several different angles (see picture). They then edit the films themselves, using Windows Movie Maker. They also use the 'Narrate' function in Movie Maker to record their own scripted voiceover.

CULTURAL LITERACY

As they are introduced to the project, the children discuss what they know already about the way science is represented on television and film: where they have seen science, and how it is made to seem; how it is shown in films they know; and what messages about science they are given by the television they watch in school. As they then watch and explore examples of filmed experiments, discussion focuses on how choices encode attitudes and values surrounding science. Children decide that in one film the choice of music connotes mystery and suspense; in another it connotes fun and delight. Meanwhile, cutaway shots of experimenters' faces seem to humanise science; setting an experiment on metals in a shipyard connotes industrial relevance and usefulness; and the consistent presence of both male and female experimenters suggests that science is ungendered. Such discussion has a clear place in the science curriculum, developing children's understanding of how science is perceived and valued in society. A question about the role of texts in shaping or reflecting such perceptions is a question about science, as well as the media.

Children learn that representations of science are just that: representations. They learn that an experiment they see on screen is in fact a sewing together of several, filmed with one camera from different angles and distances. (They can work this out in examples by mapping camera positions, which would be visible in other shots.) As they plan how to make their own films, they have to plot deceptions. Continuity is an illusion: the cut to a close-up is actually a cut to a different experiment. Cutaway shots are not filmed in sequence: the image of an experimenter, apparently concentrating on the action in hand, is actually from another session. The passing of time – signified in one of the children's films by hands turning on a toy clock – is a fiction. Smoke apparently being drawn through a tube by convection is actually being blown by a child off-screen; salt crystals triumphantly displayed at the end have really been prepared earlier: on screen, the experiment can only have one, pre-determined result. So the science represented in the films is – in a sense – ideal, rather than real.

CRITICAL LITERACY

Before they look at examples, the children consider the purpose of filming an experiment, and what such a film might contain. They watch a deliberately weak, unclear example, carried out in front of them but projected via a webcam. Enjoying picking it apart, they quickly identify what was lacking: the purpose wasn't apparent; it wasn't

obvious what was being used or done; and the outcome, and what it meant, was not clear. As they list these negatives, and plan positively the content of their own films, children are learning about scientific disciplines, articulating the importance of clear expression of aims, materials, process, observation and conclusions. Learning about science and learning about the medium have converged.

Before planning their own films, the children also discuss examples of filmed experiments for a similar audience, from schools' television. They count shots, they spot camera angles and they discuss the function of different shots and shot types. They consider the grammatical principles of how shots of different types can be sequenced, decide what the function of cut-aways might be (smoothing over edits, or providing context or perspective) and notice how and why the camera moves during shots. This learning is, of course, reinforced as children discuss how to arrange and conduct their own experiments before the camera; as they make specific shot choices; and as they plan the use of captions and titles.

Again, learning about the vocabulary and grammar of the moving image converges with learning about science and scientific method. All the time, there is reinforcement of the need for clear expression in science; the effectiveness of choices is always defined in terms of how well the science is being communicated. More interestingly, shot types can be related to different levels of precision and to different components of scientific method; and shot choices are often analogous to the conventions of written explanation, which children have to learn. To generalise: wide shots state context and relevance; mid-shots describe process; close-ups describe fine action; extreme close-ups observe and measure. Oblique angles tend to narrate action, while shots directly in front of, or above, a subject suggests observation. A static, presentational shot of materials or of the bench is like a subtitle for the next stage of the procedure, or introduces equipment to be used – the latter especially if it is held aloft by a hand, like an instruction: 'Next, take the...' Panning shots can list materials and equipment, or can describe simultaneous actions; tracking shots narrate complex actions. And zooms, while tightening or broadening the viewer's attention, can describe the significance of an observation or the intricacy of an action. (It can be useful to draw comparisons with the photography in television cookery programmes, which uses a similar visual language to narrate a bench-top procedure.)

CREATIVE LITERACY

The project presents children with a significant practical challenge, negotiating, problem solving and cooperating in sophisticated ways. Collaboratively, they plan and storyboard their films. They use webcams to film the experiment repeatedly, obtaining different camera angles for subsequent editing. Groups assign and develop production roles. Some children take responsibility for camera work; some are performers; one member of each group is put in charge of continuity, carefully noting the arrangement of equipment, which hand an object is held in, and what clothes the experimenters must remember to wear next week.

It is in the process of production that some of the benefits to children's learning in science are clearest. Their learning about scientific method, and about the topic in hand is reinforced, as they rehearse the translation of scientific method into camera shots, explaining visually what they are doing and finding out. The performance element enforces unusual levels of precision and care in the way students conduct experiments. The need to make explicatory captions, labels and titles for an audience reinforces concepts, as does the element of repetition.

> *'It made me more confident and familiar with convection, because we had to explain it accurately in our narration and watching it again and again makes us know it back to front.' (Harriet)*

Perhaps most importantly, the process is highly motivating, and developing of different learning styles and intelligences. Students who can be reluctant to engage in 'ordinary' science lessons and in a writing-based approach, can become intensely thoughtful, and even take a leading role in their group; and students of all abilities and aptitudes comment on the relationship between the practical and fun elements and learning:

> *'I think that it was great being able to have a different atmosphere to working out of books and just answering questions. It made me learn a lot because we all had great fun.' (Joe)*

'I remember more about the experiment through the film, rather than revising out of a notebook.' (Matt)

> *'I realised that there isn't just one way to learn, there are plenty.' (Deepa)*

Of course, creative literacy is also about learning to control the aesthetic, emotional and entertainment value of media texts – just as in art, design or writing. And it is to know and to own the pleasures of reading and producing media texts. In this project, although the aim of the film is to explain, children have opportunities to discuss and explore creative ideas: how a filmed experiment can be made more interesting or more entertaining to watch; what will make the film fluent and lively; the emotive function of music.

Children enjoy inventing ways to lend their films distinctive character – to make their films seem constructed in a way which is stylish, rather than just careful.

> *'My favourite part is when it finishes with a close-up of the spiral rotating; I felt this was a very effective ending. Almost hypnotic.' (Gunnar)*

One group decides that only the hands of the two experimenters will show, entering the shot from opposite sides: the device lends a witty poise to the film, and the symmetry is pleasing. (It also asserts the objectivity of science: the experimenters are detached.) Another group begins and ends their film with the careful opening and closing of an exercise book, on the pages of which captions appear. Again, the effect is visually arresting; the framing is pleasing; and there are witty echoes of the book opening at the start of classic Disney films. (It also asserts the authority of science, through – ironically, in this context – the image of written text.)

In terms of learning about science, children are exploring the emotional and aesthetic satisfactions of its concepts and of its disciplines. At times this is knowing – proclaimed in the way their visual accounts are stylised. But it is also mapped by the performative care with which materials are handled and actions carried out on camera; in the way the camera zooms slowly, to suggest the tension of discovery; or just in the smiles on the experimenters' faces. And it is clear that the performative, aesthetic element gives children a strong sense of ownership not just of their films, but of the science itself; teachers have been struck by how children, in becoming real filmmakers seem to become real scientists.

> *'Overall, our film was successful as we got everything done, we got across our scientific point and it flowed well and had good clarity.' (Gunnar)*

PERSONALISATION OF LEARNING

So ownership of form, concepts and process is very important in the way this project supports learning. And that ownership is at the base of true personalisation of learning, in which students attain and generate a real, personal relationship with what they are learning, and with how they're learning.

But projects like this exemplify personalised learning in other ways, too. Students have to plan and organise their own learning, structuring it into their film, and into the complex process of making the film. They are developing skills of teamwork, self-management, reflective learning and independent enquiry – the 'personal, learning and thinking skills' or 'PLTSs' currently being emphasised nationally. And, perhaps most powerfully, filmmaking provides an immersive framework within which to develop higher-order cognitive skills of understanding, analysis, application, synthesis and evaluation. Indeed, this hierarchy of skills can be mapped quite neatly onto the sequence of pre-production, production and post-production processes in filmmaking.

In some ways, then, a project such as this seems to be an ideal way of learning. There are, however, obvious difficulties in implementing this sort of work, in a sustainable way. Technical resources have to be readily available and reliable. Subject teachers have to be able to justify the time, in a crowded curriculum. They have to learn the necessary technical skills, media concepts and associated pedagogy. And, of course, they have to be persuaded of their value to their subjects, especially when assessment models are still based mainly on terminal, hand-written examinations. However, these are obstacles which are going to have to be overcome, as the moving image becomes an increasingly important part of students' everyday communicative repertoire.

FURTHER READING AND VIEWING

Some of the films can be found at www.parksidemedia.net, along with examples of other moving image work from across the curriculum.

There is a more extended discussion of this and other cross-curricular filmmaking projects in Media Literacy in Schools (Andrew Burn and James Durran, Sage Publications 2007, ISBN: 9781412922166).

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