Exploration of the Periodic Table using sound beam technology – a cross curricular project with the Science Department

John Bradford

Case study: #08

School Profile: South Dartmoor Community College is an 11–18 Comprehensive school with Specialist status in Sport. It is also a Training and Leading Edge School.

What was the school trying to achieve?

Excited by the suggested curriculum opportunities in the new Secondary Curriculum for Art and Design this project set out to place particular emphasis on planning and organising a curriculum out of normal teaching hours to; a) work collaboratively, b) explore areas new to students and teachers, c) engage in interdisciplinary and multidisciplinary practise and d) make links between art and design and other subjects and areas of the curriculum.

Staff also wanted to explore further the impact digital technology has on the quality of learning. Using new technologies such as digital photography, animation and the sound beam has allowed for innovative methodologies for teaching and learning.

The overall aim was to promote creativity through planned extra-curricular interdisciplinary teaching and learning, using new technologies

How was learning organised to achieve these aims?

By exploiting sound-beam technology students have been interacting with sonic beams triggering sounds, images and animations they have created in response to a number of reactive experiments. The project is mid-way through, with the aim of performing interactive experiments to an audience by the end of the spring term.

Participants in the project belonged to two main groups; one was made up from art, music, creative movement and science teachers, the other, high ability year ten GCSE students selected by their teachers from their current curricular subject specialisms, photography, music, dance and science.

Since early October, every Thursday after College for two hours, these two groups have gathered. They meet in a large open planned music room, because of the space required to set up the sound beam.

Staff and students always start and end sessions as a group, maintaining the shared focus of the project. However, as ideas developed, it was necessary for students to break out and work in their specialist areas to develop responses through sound, image and movement to the highly explosive and reactive experiments observed early in the project.

For example, once the photographers had constructed sequences of images in an art room they returned to the music room and loaded each still frame onto the sound beam software. This was shared with the other students by demonstrating that if one walked through the beam you could playback each frame in sequence creating the effect of an animated film, this to all seemed amazing. As teachers had not seen anything like this there was a real sense all were learning together with the students.

How well did the school achieve its aims?

It is evident that quality in extra-curricular learning requires time for careful planning. In this case all the arts teachers worked closely with the science teacher who acted as the 'expert practitioner' and prepared science reactions for all to observe months in advance of the project. The art and design and music teachers (both AST's) were able to use their AST time to develop their understanding of sound beam technology in weekly training and planning sessions. In doing so the schools community of practice of teachers has been enhanced with shared skills and understanding from the individual specialist and expert areas.

Also, working in extra-curricular time has changed relationships between staff and students with students benefiting from being treated more as equals by the staff than they would normally do during typical timetabled sessions. Working collaboratively has shown great benefits for students' learning, as the project involves resolving and combining both artistic and interpersonal skills resulting in more independent and deeper learning.

Furthermore, using new technologies such as the sound beam is critical to integrating the arts disciplines in the final performance piece. Movement will trigger sound and image in a truly synaesthetic way allowing for exciting combinations of sensory modes, which will hopefully be the key element to making this project finally successful.