

# Software that's on the ball

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Movement analysis programs engage pupils' minds as well as helping them train their bodies, says Heather McLean

As the early morning banter dies down, a group of A-level PE students are gearing up for a detailed look at themselves. Unlike decades of youngsters before them who relied on their gym teacher to say if they'd improved on their previous penalty kick, pole vault or 100m sprint, these kids have another means to help them in their quest for perfection - hightech performance analysis software.

All eyes flick from the interactive whiteboard at one end of the small room to a laptop, both of which are running Dartfish software ([dartfish.com](http://dartfish.com)). Concentration levels are high. As part of their course in year 13, each student at Arnewood school, New Milton, Hampshire, has to give a detailed 20-minute talk to include a careful analysis of their performance of a particular technique. The program has taken on an essential role in the school's PE A-level course, with performance analysis making up 30 per cent of the students' final grade. Physical education teacher Mark Colman, mastermind of the Dartfish classes, starts the session by showing two groups of students how to verbally analyse digitally-recorded film clips of pupils performing a movement.

Three pupils using the laptop for Dartfish analysis start comparing two film clips of different people doing the same movement on the screen simultaneously. They watch one clip of a student and one of a former teacher at the school both kicking a rugby ball. The girls get both clips to exactly the same spot in the movement delivery, then overlay the two images to increase their ability to analyse strengths and weaknesses.

When students compare two screens of two different clips, it is sometimes difficult to compare techniques if clips show a movement from different positions. To solve this issue, Colman intends to film the next batch of clips from the same angles as the last.

One of the girls criticises the former teacher's kicking technique: "He's not looking where the target is, his recovery is poor because his foot should go back down and he should be looking where the ball is going."

Then, to get a better image, the girls use the Dartfish tools to draw a box around the teacher's head, drag the extra image to the top of the screen and enlarge it; when they play the clip again, the teacher's head also plays, so the students can see his movement in more detail. Two other students, Simon Turner and Duncan Craze, have requisitioned the interactive whiteboard. The boys load a film clip of Duncan kicking a football, using a special board open

in the same way they'd use a mouse cursor, and comment actively on Duncan's performance. Both students say using Dartfish has improved their practical techniques. "It does help us when we go out to play sport," says Simon, while watching himself hitting a tennis ball. "You never see yourself actually playing, but with this you can see what you're doing wrong."

The software helps the students zero in on their strengths and weaknesses. "Dartfish allows the students to see how they're performing," says Colman. "You can tell someone what they should be doing, but people find it hard to visualise what should really be happening. It's good to put a picture in front of someone, and if that picture can move and be compared with a professional doing the same thing, that's even better."

There has been a marked development of student classwork since Colman introduced Dartfish. "I've seen significant improvement in students this year compared to last year, but this lot aren't more intelligent than last year's - it's the technology," enthuses Colman. "They're concentrating more because it engages them, so the talks this year are of a higher standard at this stage than last year's group."

Colman bought the most basic Dartfish package in May 2003 for £364. It sits on standalone computers and utilises data that is downloaded from digital cameras. He says the other versions of Dartfish were too expensive at that stage, with the standard package for networking several computers together costing £1,022 and the professional software, which includes live visual feedback capabilities, priced at £2,197.

Over several years, the PE department has built up a range of ICT kit: six Fuji A101 digital cameras for student use (£100 each), a Fuji 840i digital camera for teachers (£300) and a Sony digital video camera (£400). Colman won an Acer laptop (from £715), plus a Promethean interactive whiteboard (from £1,200) as the 2003 south England regional winner of the BT Teaching Awards' most creative use of ICT category.

The school then bought a projector for £1,356. He has been using the new hardware since late December 2003, although Dartfish has been in use since last October.

Finding the funds for such equipment is one of the biggest hurdles, Colman warns. You need a significant amount of technology to hold a Dartfish lesson. Teachers should also make sure lessons are broken down into digestible pieces, to keep students focused on covering the curriculum rather than playing.

"Narrow the task," he advises. "Get them to look at strengths or weaknesses, or a particular performer. Get them to concentrate on small pieces. Dartfish is good for certain parts of the lesson, but be careful - you don't want them distracted from sport by the tools."