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ICT in Schools: Effect of government initiatives

Secondary Physical Education

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ICT in Schools: Effect of government initiatives

Secondary Physical Education

1. This report is based on subject-specific evidence from secondary schools visits made as part of the inspection of government information and communication technology (ICT) initiatives between May and December 2001. This contributed to the main report, *ICT in Schools: Effect of government initiatives*, which is available from the OFSTED Publications Centre (07002 637833) or via the OFSTED web site (www.ofsted.gov.uk).

Effect of the initiatives

Teaching and learning

2. Only a third of teachers demonstrate effective use of ICT to promote pupils' learning in physical education (PE). The lack of wider use is mainly due to a limited understanding of the potential contribution that ICT can make to improving achievement, but also to insufficient access to resources.

3. Where ICT is well used, it is often because of the interest and enthusiasm of individual teachers, sometimes stimulated by the NOF-funded training programme. Relevant activities and appropriate teacher intervention also enhance pupils' learning, as in the following example:

In a Year 7 indoor health-related fitness lesson, pupils effectively used the digital video and playback facility to record and replay their performance and analyse their standing-jump technique. As pupils reviewed their jumping skills, they began to identify what looked effective and considered what needed correction. When appropriate, the teacher used open-ended question such as 'It's good, but how can we make it better?' that encouraged recall and individual thinking and observation. After a hesitant start, pupils questioned the use of the arms and the teacher drew on this to explain the co-ordination of arms and legs in a correct sequence for maximum distance. Pupils listened attentively and improvement was evident as they repeated and corrected their performance.

4. In another school, where ICT was rarely used in PE because of the limited access to equipment, teachers demonstrated how the occasional use of video analysis and the use of a ball feed machine could enhance pupils' performance.

In an extra-curricular session a small group of higher-attaining cricket team players practised their batting techniques. The video camera was used to record individual pupils' techniques enabling them to observe their own performance and identify reasons for poor technique. During playback, one boy noted the impact of a moving back foot and the backward slant of his body on the direction of his forward drive. Discussions were thoughtful and accurate with good reinforcement from the teacher.

5. Post-16, opportunities for learning have been significantly enhanced through the use of focused deployment of ICT, especially in movement analysis. Good planning ensures that students are challenged to go well beyond what would normally be achieved without ICT.

In a Year 12 AS-level PE lesson, the teacher effectively used ICT to help pupils understand the link between theory and practice in movement analysis. The teacher showed a video of the students' personal performances of a badminton shot. He used the interactive whiteboard to demonstrate how to download video files, incorporate still images from these into a word-processed document and annotate the images as part of an analysis of performance. The use of ICT significantly enhanced the link between the theoretical and practical aspects of movement analysis and enabled accurate annotation of performance.

6. There have been benefits to teaching and learning in other respects. Pupils are generally enthusiastic about using ICT, and apply themselves well when relevant opportunities are presented to them.

In a Year 7 mixed-ability class, pupils were engaged in data manipulation of their own athletics results from an earlier PE lesson using a spreadsheet. Pupils were attentive as the teacher guided them through the procedure to access their own data on the school intranet and the sequence of steps that enabled data analysis. As they worked independently, pupils readily sought help from the teacher and other pupils. The majority were able to log on and access the database. The use of this athletics data was clearly helping to raise the profile of PE and was a good motivator for pupils, who related to the information.

7. The development and use of ICT is a growing strength in one area where a primary and secondary school are working in partnership.

In an inventive games lesson, an Advanced Skills Teacher, based at the secondary school, worked with Year 4 pupils at the local primary school. Digital cameras were used to record pupils' games performance and these images were downloaded to a laptop. The pupils then e-mailed their inventive invasion games to some Year 10 pupils involved in the Community Sports Leaders Award course, who planned to use these games in a 'festival of sport', for all the primary schools in their cluster during the spring term.

8. Most teachers are developing their individual competence in ICT use to support their own administration and management tasks such as electronic display, presentation and records, and to prepare worksheets and materials for noticeboards. The more confident also make effective use of the Internet. Teachers increasingly feel the need for up-to-date information, particularly in examination classes where pupils are often very familiar with web sites and sometimes better skilled than the teachers.

9. However, it is rare to find systematic use of ICT by all members of a department across the full PE curriculum. Too often the use of ICT is erratic and when it is used the purpose is often unclear, being an end in itself rather than a tool for improving pupils' attainment in PE.

Pupils' achievement

10. Limited use of ICT in PE at Key Stage 3 and Key Stage 4 means that there is insufficient evidence to indicate a positive effect upon pupils' progress in the subject. In particular, across Key Stages 3 and 4 pupils' ability to analyse their own and others' performances using ICT is not sufficiently developed.

11. When given opportunities in practical sessions, pupils demonstrate good use of the video camera to record performances and effectively analyse the images to help improve their movement analysis and observation skills.

In a trampolining lesson, Year 11 pupils effectively used the digital video camera to capture performance of rebound and tumbling movements with a high degree of accuracy. These data

coupled with a well-structured pupil/teacher discussion provided good-quality feedback that enabled pupils to evaluate their performance and to recognise areas for improvement.

In post-16 lessons, a group of students recorded their performance and downloaded individual video files in order to analyse movement through a word document.

12. In a few schools, ICT is also used effectively to improve pupils' knowledge of different aspects of PE.

Year 7 pupils were developing their own presentations using ICT, drafting text on the basis of research from PE and sport textbooks. All were using clip-art and other graphic packages to recreate presentations that described a particular sport and what it involved. Although pupils showed different levels of creativity they used the keyboard and toolbars comfortably to create a presentation with text and graphics.

13. The majority of Key Stage 4 pupils following examination courses are able to retrieve and summarise required information from different parts of Internet sites; for example, for different sporting activities and for physiology revision.

Year 10 GCSE pupils had timetabled access to a well-resourced computer suite and the teacher used this to enable pupils to access resources on the Internet to help their preparation of presentations on fitness and health circuits. They showed a range of experience and the more competent were able to switch between sites and retrieve data.

14. Although most pupils are able to carry out simple interrogation of the information they retrieve, those less confident often show insecurity in their ability to evaluate and synthesise information and often limit their responses to one-word fill-in answers. More confident pupils make extensive use of word-processing, digital photos, tables and graphs for their GCSE project work. The overall quality of presentation of these projects is at least satisfactory, more often good.

15. Pupils preparing for their GCSE examinations make effective use of Internet revision sites to support their learning. In one school, the recent acquisition of a single computer linked to the school's network enabled pupils to use the Internet and word-processing to produce material directly relevant to their examination work.

Implementation in schools

Management

16. In just over a third of the PE departments, subject planning for ICT is satisfactory overall. In the majority of departments, subject ICT development planning is not effective in terms of ICT in the curriculum, resources and finances. Monitoring and evaluation of ICT by heads of department is limited and leadership in this area is generally less than satisfactory. This lack of monitoring, leadership and effective strategy significantly hinders the capacity of ICT to contribute to pupils' learning in PE.

17. Where management and leadership are most effective, this has led to improved opportunities for pupils and increased access to resources. For example in one school:

ICT was monitored as an integral part of department reviews. Every curriculum leader observed each teacher teaching once in each term. This evidence was used in the curriculum review. Unannounced visits were made during an identified week to check teaching and pupil

planners/diaries - with an OFSTED-style report once every 18 months for each department. Departments then had to produce an action plan including ICT as a key issue. In physical education this review led to a curricular audit of existing opportunities for developing pupils' ICT capability and the planning of more structured tasks for all pupils across units of work.

18. In most departments however, subject plans have not been updated to include development of ICT. Although departments have useful planning ideas, plans to improve provision and resources tend to be too informal and are not based on a curriculum audit. Opportunities for pupils to use ICT continue to be dependent on individual teachers.

19. There has been little strategic thinking about the use of ICT as an aid to teaching and learning in PE and the use of ICT generally has been piecemeal. Schemes of work rarely make reference to specific ICT applications and National Curriculum requirements for ICT in the subject. Despite teachers' increased awareness of the use of ICT, the effect on the formal organisation of the curriculum is minimal. Most departments provide occasional use of an application, but this is not yet enhancing teaching and learning.

20. In a third of departments, the use of ICT has improved the management and analysis of pupils' achievement data in PE. These departments are beginning to see ICT as an effective tool for collating and retrieving data and tracking pupil progress, although most use it as a recording tool rather than for interrogation purposes. In some schools, where all data are recorded electronically across all subjects, PE staff are beginning to use these for pupil tracking and target-setting.

21. Key Stage 3 pupils' performance data in PE are occasionally being used for self-assessment and analysis in lessons. For example:

Year 7 pupils were being given opportunities to take more responsibility for their own learning. Set tasks involved observing and analysing their performance through video, and recording and logging performance results using stopwatches and a laptop.

Staff development

22. Teachers' personal ICT skills needs have been identified, usually through an audit, but in just over a third of departments neither pre-NOF nor the NOF-funded training itself fully addressed their personal needs in ICT skills. The most positive effect has been in terms of raising teachers' awareness and as a baseline of support for low level users.

23. Staff have found some of the materials difficult to negotiate, incompatible with school hardware and inflexible. In one school using a distance learning programme, all staff received the same package, despite filling in initial audits which revealed very different starting-points. In another school, the head expressed disappointment with NOF-funded training, to the extent that he felt it had held back his vision for the development of ICT in the school.

24. The overall effect of NOF-funded training for improving teaching and learning in PE has so far been minimal. There are few instances where training has been sufficiently subject-specific. Most departments still have no policy for the use of ICT and remain unclear about how applications could benefit teaching and learning; some are unwilling to experiment or try out ideas. Much of what change there has

been in pedagogy has been self-initiated or met through support offered in school by the ICT co-ordinator, technicians and other key staff. Heads of department often do not see ICT as a priority, particularly when allocating time to make use of the training materials.

25. In one department which had made good progress in developing the use of ICT, the subsequent training was a direct result of the internal climate and a desire to move ICT further forward. The ICT co-ordinator brokered a number of opportunities to guide subjects to greater use of ICT; for example the shared purchase of whiteboards in return for planning or dissemination of outcomes. The school's and PE department's strength was a direct result of the school's internal capacity to improve. This approach to encouraging staff use of ICT was very effective in ensuring that they were resourced and eager to deploy ICT, as well as take risks.

Resources and accommodation

26. In over half of the departments visited, pupils have access to suitable accommodation that supports the use of ICT. This is usually based on a booking system for computer suites. When access is available, accommodation is suitable and supports learning well. The NGfL initiative and NOF-funded training have increased the awareness of the potential of ICT for raising attainment particularly in examination theory and coursework.

27. Although most departments make use of basic hardware such as stop watches, tape recorders, television and video playback facility, access to more sophisticated equipment such as heart rate monitors, digital video and still cameras is too varied and mostly less than satisfactory. Investment and development planning in this area is not considered a high priority within departments and across schools.

28. In a health-related fitness lesson, pupils used heart-rate monitors with a high specification to provide accurate recording of heart rate via a simple telemetry system between the chest strap and a wristwatch that received the data. However, such equipment was not used systematically and the department did not have any of the interfaces required in order to download data directly onto a computer.

29. Some departments still do not have a PC for management and administration. Few departments have a direct link to the school network, although students and teachers can access this via other suites. Schools use a variety of funding sources to enhance their equipment.

30. One department created a new workroom with an interactive whiteboard, large TV and video recorder, and computer linked to the school intranet. These were being used more effectively for GCSE examination groups at Key Stage 4 than for the majority of pupils in both key stages. This room was close to the gymnasium and enabled more effective use of video analysis as part of the ICT usage in trampolining. The designation of the school as a specialist sports college brought with it additional funding which the department used to purchase video digital cameras and heart-rate monitors. NGfL funding provided money for linking the single stand-alone computer to the school intranet. Funding for the interactive whiteboard and computer came from within existing school budgets.

31. The majority of schools teaching PE at GCSE have a small number of items of software. Although pupils have access to general office software as well as PE-specific hardware and software, they have limited opportunities to use this as part of learning in PE. The few departments that have moved into the use of digital video with its associated picture quality have started to improve pupils' learning.