E3 School Portrait Cramlington Community High School Northumberland, England

Visited on: 14th, 15th October 2003
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1 General characteristics of the school

Cramlington Community High School is a large, community school mainly serving Cramlington, a small town in Northumberland in the north east of England. It has 1600 students aged 13-18 years. Students come to the school, from one of four local middle schools and about two thirds of them stay on at the school at the age of 16. They follow the English National Curriculum with a range of options between 14 and 16, mostly leading to examinations for the General Certificate of Secondary Education (GCSE) or General National Vocational Qualification (GNVQ). After 16, students follow courses at Advanced Supplementary (AS) and Advanced (A2) levels.
The school has sought to integrate the use of ICT into teaching and learning for many years. In the 1990s the school introduced a local area network and provided technical support for the first time. From 1997 the transformation of teaching and learning has been driven by the use of the Accelerated Learning Cycle (see appendix 1) as a tool for planning lessons and schemes of work. Over time the school has refined and added to this to generate the Cramlington Learning Cycle (see appendix 2). Rather than use ICT to drive transformation in a teacher-centred approach, the school has tried to create more student-centred classrooms in which ICT can play an effective part in what students do. ICT has therefore been used to underpin the learning cycle and to bring about more participative learning. Although the main thrust has thus been ICT as a cross-curricular skill, the vocational GNVQ courses in ICT have been popular options.

Recent developments took place in two phases. Phase 1 from September 1999 to July 2001 involved the purchase of ten interactive whiteboards, generic ICT training as part of a national programme and in-house "coaching" of staff in the classroom by a specified teaching and learning coach who worked alongside teachers. Most departments had access to a cluster of computers and three classroom sized computer rooms were available for booking on a school-wide basis. The use of ICT was embedded in the learning cycle, but the opportunity to move beyond this was initially hampered by lack of finances and an inflexible curriculum.

Phase 2 lasted from July 2001 to November 2002, during which time finances were boosted by the school becoming a specialist science college. The school was also given an additional grant for ICT resources from the DfES. These two new sources of funding enabled all classrooms to be fitted with interactive whiteboards. The new status of the school as Specialist College opened the way for the appointment of two professional web designers and this team has now risen to three. These technical

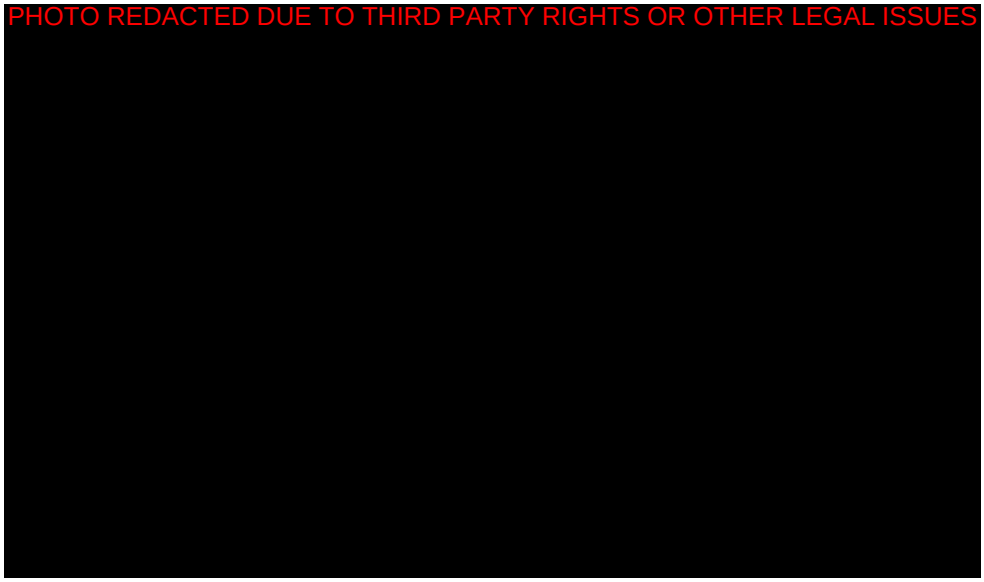
specialists help staff to implement subject curricula in very accessible form on the school's intranet by preparing learning materials and ICT resources for the use of staff and students. The organisation has also been modified so that, for six "Intensive Study" weeks of the school year, the timetable is reconstituted into longer blocks of time for subject departments that request longer blocks for study. At the same time a "Learning-to-Learn" course was conceived for students in their first year in the school (Year 9), based around habits, attitudes, dispositions and skills needed for the 21st century.
The school now has a network of 700 PCs, supported by a team of two full-time technicians, and there is access to the Internet from all classrooms via a broadband (10Mb) link. Many staff have their own laptop – for both administrative and curriculum use – and these have been funded jointly by the Government's Laptops for Teachers scheme and the school itself. Major developments have taken place in the past few years in transferring in-house learning material to the school's intranet and the school has recently enabled many students to access such materials from home.
The school identified five key aspects of learning in which ICT could play a prominent and demonstrable role. The intention was for students to use ICT confidently and appropriately to:

- research and help others research
- experiment and explore
- create
- communicate
- transform.

2 Changes for students

Students in this school have more extensive and consistent exposure to the use of ICT than do the great majority of students in English schools. The availability of usable equipment in virtually every area of the school means that staff and students can turn to ICT when necessary, with some confidence that systems will work. The facilities on the system are accessible from nearly all of the 700 or so computers networked in the school, including some of the older machines that run on earlier operating systems. These facilities are now taken for granted in teaching and learning.

The ICT has been introduced primarily to help teachers to teach and students to learn. ICT is seen as a tool for getting work done rather than as an object of study, or a set of techniques to be mastered. Students learn to value ICT because they see teachers handling systems competently, for instance to: communicate a point; to capture a physical movement or event in order to analyse it; to manipulate and transform sound and images; or to display and test a simulation. These uses convey a significant message to students, emphasising that ICT is the teachers' flexible and versatile servant, and encourage students to emulate their teachers' role and to turn ICT to their own advantageous use.



The most extensive change that students experience is to work in rooms equipped with interactive whiteboards that allow instant display and interaction with a growing database of schemes of work and lesson plans in subjects. Some of the plans come complete with well-considered illustrations and exercises. These allow not only teachers to share and clarify lesson objectives and examples but students to interact with the material, to come forward in lessons to move objects on the display, to remind themselves of the lesson's progress, and sometimes to get instant feedback on their own answers.

In mathematics with an able Year 9 class, the teacher used an online lesson plan and exercises that introduced the Pythagorean property of a right-angled triangle. The teacher handed out envelopes with card shapes for students to discover the equivalence of the area of the square on the hypotenuse and the sum of the areas of the squares on the other two sides. The teacher then used an animation of these shapes to illustrate this equivalence on an interactive whiteboard. This illustration of the transformation of two squares into one made up of the coloured shapes was strikingly repeated by the teacher several times to ensure all students understood the transformation of equivalent areas.

In another mathematics lesson, sixth form students were being taught how to construct the equation of a tangent and a normal to a curve. They were able to visualize the problem, and to check their results, more effectively by using graphing software (in this case, Omnigraph) on laptop computers to display the curves and the new tangents. They needed little encouragement to turn to ICT in this way.

More striking examples of the use of the interactive power of computers to create effects and images of high quality were seen. This invariably allows students to analyse their work in a way that would not be possible without ICT.

In an art and design lesson, digital imaging software was used to create stunning effects based on captured digitised images. Students enhanced their work through the use of special effects.

In a sixth form PE lesson, students made video footage of each other performing a trampoline sequence as part of their coursework. The students were then able to watch this projected onto a whiteboard and analyse and discuss their movements with the teacher. By annotating centre of gravity and the direction of movement on freeze-frame images of the student's sequence, the teacher quickly showed how the students could improve their performance.

In sixth form French, the class worked in groups to act out and discuss situations at home and in school. These were digitally recorded and displayed by the teacher on an interactive whiteboard. Using software for annotating still and moving images taken from this recorded video, the teacher was able to identify in speech bubbles a critique of expression, pronunciation or grammar. These points could be captured on a file and also displayed on the whiteboard so that students could study these to improve their work immediately and even to patch corrections into the recording where possible.

The materials created by teachers and students in class were also used for subsequent assignments during private study periods. In this school, rather unusually, students in the sixth form have 20% of their curriculum devoted to structured private study. Unlike other private study time, when students decide what work they wish to do, this independent study time is focused on specific assignments each week. The work is e-mailed to teachers after the private study periods and promptly marked. This is highly motivating for students, particularly as availability of space at a computer and technical assistance are guaranteed during these independent study periods. Such a generous, timetabled provision in the Independent Learning Centre (ILC) positively affects attitudes and attainment, focuses attention and generates good pace in learning. This makes an important contribution to learning.

During independent study in the ILC, students viewed a digitised video of a class discussion in order to identify and correct the mistakes they had made in speaking.

In another part of the ILC, students of performing arts had been assigned to view a video of the performance of a professional musical group in order to comment on its performance, using criteria identified by their teacher. They also had to view a video of their own dance performance and suggest improvements based on their observations of the professional group. Criteria that students were to use in this evaluation task had been specified in great detail and were challenging. The use of digital video via a PC enabled them to review different sections of the video easily and quickly repeat sections

Students are expected to take responsibility for their own learning lower down the school as well, and this is made possible mainly because of the availability of ICT and information sources in many areas of the school. The Learning Resources Centre (LRC) is equipped with older computers, but is very popular with students at all times of the day. Students also enjoy working in well-designed areas which allow flexible ways of working and different modes of learning.

The range of applications that students meet here is more varied than in most schools. More important is the fact that each application is used repeatedly in different contexts so that its uses and limitations are better understood. Most students encounter the main standard applications for handling text, numerical data, images and sound. They also encounter the use of Inspiration, which enables them to develop "mid maps" in planning and thinking about work and Camtasia, which captures screen activity and sounds for a defined time and produces demonstration videos or tutorials that can be streamed or emailed to others. Students are aware of effective ways of searching the Internet for materials of interest.

To underpin students' experiences of independent learning, they spend over one tenth of the timetable in Year 9 in the Learning-to-Learn course. This aims to help students to identify their own orientations and capacities for learning. It also helps them to employ ICT skills associated with the school's systems and facilities so as to make best use of ICT in their learning as they move through the school, preparing them for investigative, creative and analytical tasks that they encounter in most of the rest of their school subjects.

In one Learning-to-Learn session with a large class in Year 9, the students were studying websites of their heroes. They had to extract information about the backgrounds and achievements of their chosen hero and describe why, and how, he or she had made their unique mark in the world. As usual in such lessons, students spent some time making notes about their topic and even more in attempting to present the material attractively in webpage format. The end of the lesson was a plenary session in which the teacher asked every student in turn to say exactly what he or she had learnt during the last three lessons. Most felt they had learnt mainly technical ICT skills and so the teacher asked them to focus in the next lesson on identifying any new knowledge they were gaining about their chosen heroes. Reflection about the learning process was thus articulated more explicitly than students would have encountered at this age elsewhere.

3 Changes for teachers

This is a school which takes great pride in the quality of its teaching and which has rigorously researched the best methods and approaches. It analyses student learning styles and actively teaches them thinking skills. ICT is a key part of this teaching and learning strategy. ICT permeates almost every lesson, sometimes supporting the learning and at other times enhancing it. ICT use is in harmony with a wide range of other approaches including accelerated learning and critical thinking skills. The use of software that supports students in creating mind maps and visual representations is a significant feature of the work of the school.

There is a strong ethos of reflection on practice, review, sharing and evaluation. Staff have adopted new approaches to their work over a period of time and have

made extensive use of school training days when students do not attend. These have supported staff in adopting the new pedagogic approaches and in seeing how this work could be supported and extended by the use of ICT. Staff work well together, share ideas and observe each other's practice in order to improve their work.

Teachers begin each lesson by stimulating the students' curiosity through a short thought-provoking activity and then by connecting the lesson to previous learning. Sometimes multimedia presentations are part of this, while at other times there are interactive whiteboard activities, which might include matching definitions to vocabulary. In other lessons ICT adds a unique dimension to the work of particular subjects such as music composition or video analysis of students' work in physical education classes.

Not only does ICT penetrate every classroom but teachers have access to a wide range of electronic resources to aid the teaching and learning process. In most subjects, all lesson plans are quickly accessible on the school's intranet both by teachers and students and these plans are now available to them from home. Professional development for teachers is important to the school and all teachers have access to high quality programmes, including coaching which helps them to develop effective practices in a supportive context. The organisation of the teaching resources allows teachers carefully to select materials that are fit for purpose. In a geography lesson, for example, the teacher chose animation and video clips that provided a powerful illustration of the concept of oxbow lakes. These provided a very clear demonstration and were also available for students to revisit at a later stage of they needed and for any students who missed the lesson because they were absent from school.

The ethos of the school requires teachers to exploit the potential of ICT; they are supported in doing this through expert technical support and pedagogic advice and this enables them to innovate and push forward the boundaries of their work. ICT is contributing to a culture of success and is a tool which supports the school's emphasis on teaching and learning of the highest quality. ICT helps to improve the personal productivity of staff in a number of ways. Firstly it focuses their planning onto a wider range of resources designed to enhance learning; secondly it raises important questions about how the students learn; and finally it enables teachers to collaborate by sharing resources and ideas.

Some of the best practice takes place where teachers use the technology to complement their own subject expertise.

In a music lesson, sixth form students were using the Sibelius composition software to develop their own pieces, using musical devices such as transposition, inversion and ornamentation. The teacher skilfully combined his own subject expertise with the power of the computer to show a student how to effect a transposition using a dominant fifth chord.

4 Organisational change

The driving force behind ICT comes from the headteacher and senior management team, but the priority is shared by staff across the school. First and foremost the school's focus and vision is one of developing high quality teaching and learning. ICT is seen as a tool which is used as and when appropriate in all learning environments and in subjects across the school curriculum. This philosophy is evident through the strategic plans which fully integrate these priorities and approaches.

The large investment in ICT and human resources has impacted greatly on the way teachers plan and organise their lessons. Teachers are not slaves to the technology but critical users of it in many cases. Teachers are flexible in the way they use PCs and peripherals, such as digital cameras, to enhance the learning for students. Teachers make good use of the PCs and interactive whiteboards in their classrooms and use these in a variety of contexts to clarify points and to involve students.

The curriculum is seen as dynamic and there is an expectation among staff and students that it will remain so. The school has recently received specialist science status which in itself is triggering new developments across the school. Well conceived adaptations to an existing building have resulted in the 'Discovery Zone' which is designed specifically to stimulate and enhance different styles of teaching and learning. This houses large spacious rooms with well-designed furniture to enable students to use computers individually or to take part in round table group work, with or without a single computer. As in other classrooms there is an interactive whiteboard which can be used by teachers or students. The Year 9 Learning-to-Learn programme happens in the zone, lasting for seven lessons per fortnight throughout the year.

The Learning Resources Centre (LRC) is open to all students throughout the day including sessions before and after school. The centre is heavily populated at lunchtime by students of all ages involved in various activities including using computers, reading library books and playing chess. The Discovery Zone enables individual access to laptop computers or group work around a shared computer at a table, or plenary working as a whole class. The school encourages students to reflect on their most effective individual ways of learning - for instance, through kinaesthetic, practical, visual or auditory experiences. Students learn to make best use of their time and capabilities, and ICT is one of the resources that help them in this. They are trusted to handle equipment with comparatively little adult supervision, although help is at hand if they need it.

A media studies class in year 10 had previously studied existing photographs and learnt how to analyse their narrative content by employing a set of criteria. Students now applied these criteria, in groups of three or four, to devise scenarios for narrative photographs, then capturing relevant images with digital cameras and evaluating their images using the given criteria. There was much high-quality discussion of the still scenes and effects to be created and filmed.

Groups took digital cameras to areas of the school where suitable backgrounds and lighting would be found. Equally good results and discussion could have been obtained with Polaroid images, but the cost and the organization of subsequent scanning of such images into the computer would have reduced the overall volume of work ready for analysis.

Students in the sixth form are given 20% of their time for independent learning. This is part of their structured support programmes during which time they have ready access to ICT facilities in a dedicated room. They are set specific tasks for part of this time and are able to access ICT-based resources to support them in these.

The organisation of students into teaching groups is not altered by the approach to teaching and learning and students are set by academic ability. ICT very much supports the whole school vision for raising attainment and achievement of all students.

The school makes very good use of its own website and intranet. These systems are managed by a team of web developers and technicians employed by the school. The intranet is well developed and well used across the school. All teachers produce lesson plans to an agreed format which are then attractively presented, illustrated with suitable graphics and which include links to other web-based resources. These are uploaded onto the intranet for all students and staff. The system now enables access for staff and students from outside school. This will enable staff to use the resources to plan from home and students to undertake homework and coursework there without having to transfer files. Students without internet access will be able to access the system through the library and LRC resources. This development is eagerly welcomed by the students.

5 Changes in co-operation with others

The school has worked in a unique way to tap into the best teaching and learning practice around the world. There is a Research and Development Group, open to all staff, who explore and research worldwide developments in innovative approaches to teaching and learning. Many staff have visited other countries, including the USA and New Zealand in order to bring back ideas and practices for potential use at Cramlington.

Closer to home, the school has worked to develop its resources over this period of rapid growth, in collaboration with its Local Education Authority and Regional Broadband Consortium. Staff are also in contact with other schools making use of similar ideas, especially in the area of accelerated learning and the integration of ICT.

The award of science college status has required the school to engage with the local community. The opportunity to combine this with the more flexible curriculum with longer time slots for lessons led to a “Superscience Day” in which the community were invited into school to take part in a range of activities devised and run by students. Opportunities to interact with ICT were part of many of the features of this event.

As part of the school's science college status, staff also work with colleagues in its feeder middle schools to develop their practice in science. One interactive whiteboard has been allocated to each of these schools and Cramlington staff will be closely involved in supporting staff there to develop their use of these.

The school has made use of industrial mentoring schemes in order to provide some of its students with role models in the local community to motivate them to higher achievement. The school also works currently in partnership with the local Further Education College in order to develop the provision of vocational routes for students from 14-19.

6 Reflection and ambitions

The school has come a long way, especially in the past six years. Staff are convinced that their approach to using ICT is likely to be most effective in harnessing the power of technology to support and enhance teaching and learning. By locating these developments in broader educational practice, the school has ensured that the focus is on quality and that the use of ICT seeks to serve this goal rather than be an end in itself.

As is often the case, the senior managers in the school would have liked to move faster but were unable to do so – mainly for financial reasons and because of the inflexibilities in their curriculum. Both of these issues have now been addressed to some extent: additional finances have brought resource up to unprecedented levels that have encouraged staff to approach the use of ICT and attendant pedagogy with confidence. The aim now is therefore to move the agenda forward from one of improvement to one of transformation, in which students have an even greater active involvement in identifying their own learning styles and are enabled to take learning further than would otherwise be possible without the support of ICT.

7 Appreciation

The school has successfully combined a number of concurrent developments – in particular it has ensured that ICT is fully integrated within a broader process of developing pedagogy. The high quality strategic leadership, curriculum planning, technical support and professional development have all contributed to the school's distinctive progress. Having reached levels of provision that exceed a certain "critical mass" is also a key factor. Teachers know that ICT is widely available and thus that they will be able to deploy it successfully in their teaching on an everyday basis. The additional provision of self-study environments available through learning resource centres, the development of school specific resources made possible by a team of web designers and the high quality technical support are also major contributory factors which could be replicated by others.

Finally a close match between the school's very ambitious vision and its day-to-day practice has been carefully and creatively realised. The school's commitment to matching good vision with practice is exemplary and means that the role of ICT has been carefully placed within the pedagogy of Cramlington High School.

8 Lesson for others

Cramlington Community High School has made enormous strides in its development of teaching and learning in recent years. It has drawn on known best practice from around the world and aspects of the school's own approach are now widely practiced as part of the national strategies to develop teaching and raise attainment in England. What is unusual is the consistency with which this approach is applied here. This has been greatly enhanced by the level of ICT resources which has enabled staff to make all lesson plans and resources available on the school intranet. This has obvious benefits for example when students are absent from school or when they wish to revise a topic.

The other major characteristic of the outstanding practice here is the commitment of staff to developing their own practice through reflection, peer observations and collaborative planning. Teachers here are willing to learn from each other and when they observe each other's lessons, they do so in a climate of mutual respect and trust that recognises the power of this collegiate approach to developing practice. This is aided by the capacity on the staff for coaching, which enables individuals to address areas they have identified for their own development by learning from colleagues.

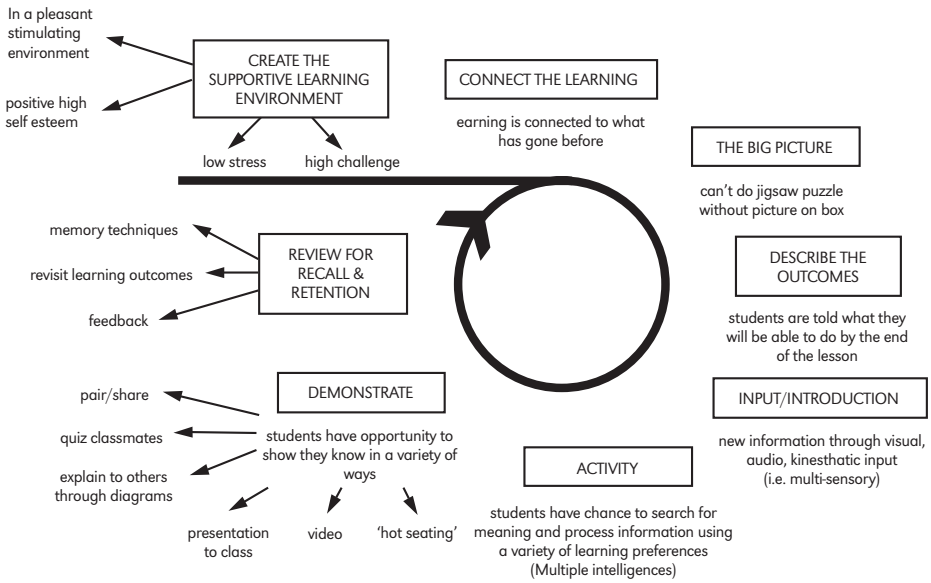
It is this very focus on teaching and learning that has enabled the school to move forward so well in embedding ICT into its everyday practice. The school succeeded in creating a fertile context in which ICT could develop, by setting its sights on the generic issues of how to improve students' learning. In doing so, they thus avoided some of the difficulties that other schools have found in matching the diverse opportunities that ICT offers to a very diverse range of teaching and learning situations in classrooms.

Developments have, of course, been complemented by two very important elements of support: technical support for the large resource and the creation of ICT-based materials by non-teaching staff with the appropriate expertise. This latter development is more unusual and has ensured that the aspirations of teachers can be met in a practical way.

But strong leadership is the single most significant factor in ensuring that all of these characteristics came together in a coherent way through the vision and single-mindedness of the senior management team and the headteacher in particular.

Appendix 1: The accelerated learning cycle

The Accelerated Learning Cycle



Adapted from Alistair Smith

Principles Underpinning Accelerated Learning

- A learning environment that reduces stress and is safe and stimulating.
- Learning is not the passive absorption of information but the active creation of knowledge
- Collaboration aids learning: a learning community as social animals learning from each other and with each other is enjoyable, natural and effective
- We learn in different ways with some of us preferring to see information, some hearing information and talking about it and others by doing – touching, feeling and making
- Learning involves the whole person not just the head; the whole body and mind with its feelings and emotions
- We learn more from active experience ie. doing than from presentations and materials

Appendix 2: The Cramlington Cycle

Central to the Cramlington Cycle is the notion of developing a community of Thinkers and Learners. This underpins, supports and informs all of the work we do. Not every learner is a 'thinker' and not every thinker necessarily has the skills or the disposition to learn. Creating a Community of Learners therefore covers a wide area of content, processes and skills all of which have to be addressed: Emotions and learning; developing classroom rituals, the learning environment; confidence to take 'risks; being equipped with the tools of learning (eg graphic organisers or mind mapping techniques); developing quality group work skills. Much of the groundwork for this will be done in Year 9 during the learning to learn course but it must be reinforced through the curriculum. Creating a community of thinkers would seek to develop and make explicit higher order thinking skills and metacognition - thinking about thinking. Work in Israel on 'for tile questions' will inform our work in this respect.

The notion of transferability of skills is very important. All staff will spend a day in the Discovery Zone becoming acquainted with the L2L course and the skills, habits, dispositions and attitudes we are trying to foster. Colleagues will be asked to reflect on how these can be incorporated into their own subject areas. A new Year 9 curriculum and the Two Year Plan to develop thinking skills and assessment for learning will provide the platform on which we can further develop the concept of a Community of Thinker and Learners.