

MILO: Models of innovative learning online at Key Stage 3 and 14–19

Final report appendices

July 2008

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Appendix A: case studies

The Bridge Academy

The Bridge Academy in the London borough of Hammersmith and Fulham caters for young people aged 11–16 who have been excluded from schools in the borough or are long-term school-refusers.

Currently, there are around 180 students on the Bridge Academy's books, of whom approximately 40 use Notschool.net and do not attend physically. Other students attend the school from Tuesday to Friday. Since September 2007, all students work at home on Mondays using Bridge Academy Online. There have been no complaints from parents or the local community about any problems arising from this arrangement.

The Bridge Academy aims to offer a different kind of experience and different relationships with staff from those offered by other schools ("all our learners have a history of failure at school"; "our students require a lot of structure"; "they don't like change"). There is an emphasis on giving learners clear goals, with each level of achievement clearly explained and specific instructions given about what the learner must do to achieve the next level.

Class groups at the Bridge Academy are very small (between four and six students). The day is divided into periods which are indicated by an electronic buzzer. The curriculum covers core subjects of mathematics, English, science and ICT, and also design and technology, art, music, and personal, social and health education (PSHE). There is no provision for humanities or modern foreign languages, but learners who arrive in Year 11 with appropriate coursework are supported to pursue accreditation in these areas. Some students are enrolled on courses at other colleges on a part-time basis and leave the Bridge Academy to attend these.

Learners all work for accreditation, including national tests, GCSEs, AQA units and BTECs. The emphasis is on each learner achieving his or her best, but with the recognition that other aspects may be much more important for some learners' educations than qualifications.

Many learners at the Bridge Academy, but not all, have learning difficulties (eg with literacy and numeracy). Some learners have high academic ability but very difficult home or local community backgrounds and have been unable to do well in a mainstream school environment. (Staff describe some learners as very damaged.) Learners fall into two broad types:

- Those who have been excluded from school because they have done "something stupid" (this is a euphemism used both by staff and learners)

- School refusers who have opted out of school on a long term basis for a variety of reasons, including having been bullied.

In addition to its use for curriculum and assessment, ICT is used to monitor learners' behaviour using a management information system (MIS).

Rationale for introducing online learning

The Bridge Academy has had considerable success with Notschool.net and has worked closely with Stephen Heppell and Ultralab to make the most of what Notschool.net has to offer. Staff have learnt that Notschool.net is not suited to all young people. Hence the Bridge Academy assesses young people on referral and decides which are suited to Notschool.net and which are not. Around 40 learners are currently on the roll as Notschool.net 'researchers' and never come into school.

Bridge Academy Online was developed for the young people for whom Notschool.net is not the answer. Like Notschool.net, the vision behind Bridge Academy Online is that technology can re-engage young people who are not succeeding in ordinary schools. (Approximately 20 per cent of students show during the induction that they are not suited to Bridge Academy Online and are enrolled instead at a specialist unit at a separate location, or in some cases transferred to Notschool.net.)

Model of online learning

Bridge Academy Online provides learners with strong structure and support for their learning in a school environment on four days a week, and requires them to take responsibility for their learning on Mondays, carrying out work that is an integral part of the curriculum in all subjects.

Like Notschool.net, Bridge Academy Online provides learners with an Apple computer, peripherals, digital camera, wireless router and broadband connection. Learners attend an induction lasting two to three weeks before receiving the equipment. Bridge Academy Online provides learners with access to the internet (via the school's proxy server). Learners may use the internet at home as they wish, but the machines are set up to block illegal downloading of music (learners can purchase music from iTunes) or installing software that might damage the machines and require reinstallation of operating software.

Apple hardware was chosen rather than PCs on the basis of Notschool.net's experience. Bridge Academy believes Apple provides a stable system without the need for plug-ins and memory cards or the frequent upgrades required for PCs. There are also fewer security risks from viruses. PCs are used in the school, and the learning platform can be accessed from either the Apple computers or PCs.

Technical expertise is available from the city learning centre where both the headteacher and the assistant headteacher once worked (“they are future-gazing as well” – assistant headteacher). Procurement of home computers, including the purchase and installation of broadband connections, is handled by a third-party provider. Computers are delivered to homes and installed by the Bridge Academy’s chief technician, who provides technical support by telephone. If necessary, staff make home visits.

The computer is for the whole family’s use, but access to Bridge Academy Online is for the learner only. Learners are required to log in every day. The computer and associated equipment is kept by the learner after finishing at the Bridge Academy; this gives genuine ownership and is intended to encourage learners to continue online learning after leaving school.

Bridge Academy Online provides learners with access to the learning platform (which they can also access from school during lessons, depending on what the teacher has planned and the availability of laptops). The learning platform is externally hosted, which reduces the need for in-house technical management. One student told us, “It runs out of space really quickly, but it doesn’t matter because it’s all on my computer at home”; however, the school can expand the storage space for each user.

Students carry out a variety of ‘research’ on the internet from home. Some students also play online games, for example multi-user games. Games are not allowed at school, but at home learners are free to use the computer for whatever they want. In any case, there is evidence from other research that certain games can be challenging and provide a range of learning outcomes; multi-user games can also facilitate collaborative learning.

The Bridge Academy Online model of online learning was introduced in September 2007 (with a pilot for 20 Year 9 students from April 2007) and is in the process of becoming embedded in the way that teaching and learning is undertaken.

Currently, online learning consists of students accessing the learning platform on Monday mornings, finding the tasks that staff have set them in each subject (normally the same task for all the students in the group), and completing those tasks on their own using the resources provided on the learning platform and/or the internet. On Mondays, students undertake all activities online.

In Bridge Academy Online, activities are designed to be carried out by learners independently. If learners do not complete their tasks on Monday, they can continue to work on them during the rest of the week, at any time that suits them. Tasks are completed and posted on the learning platform. Most tasks involve reading and writing (word processing). Tasks also often involve reflection, problem-solving, analysis and evaluation, and searching for information on the internet. Although all

the learners' work is computer-based, much of it is not carried out online. In some cases, activities may be retrieved from the learning platform and printed out and completed on paper; however, some students commented that they appreciate the spell check facility and neat presentation that they can achieve by using a word processor, which does not show mistakes and crossings out.

Access to Bridge Academy Online during lessons at school varies greatly between subjects, but, with the exception of ICT, is occasional and brief. There are plans to introduce "a handheld device of some description" for use in school, which would facilitate better integration of Bridge Academy Online into classroom teaching in all subjects. The aim is for all subjects eventually to provide access to the learning platform in all lessons during the week, and for teachers to adopt a blended approach in lessons.

Content is provided on the learning platform for all subjects. The extent to which all learning content provided by teachers is on the learning platform varies between subjects, with ICT having taken the lead and being more or less fully online. Preparation of online materials, including the transfer of current paper-based materials, is time-consuming and ongoing. Staff currently use some of their time on Mondays to produce these online resources.

Online communication – including email and chat – is built in to the learning platform, but currently interaction with other learners and the teacher almost always happens in school. Learners can contact their teachers to ask for help by email, but in practice do so only very rarely. Communication in Bridge Academy Online is therefore almost entirely asynchronous. Teachers assess students' work online and send them comments using email. Teachers also discuss learners' work with them face to face in the classroom. There is currently very little student–student communication, according to the students interviewed. Learners know that they can contact other learners to ask for help or discuss their work. All students use mobile phones to contact each other in preference to email. Students use instant messaging and social networking at home, but these are not used as part of Bridge Academy Online's curriculum.

Online assessment includes completion of work by learners and formative feedback from teachers. Students' work uploaded to the learning platform is formatively assessed by teachers sending students comments online. In the classroom, formative assessment is carried out verbally (offline). All teachers place a premium on formative assessment given through their classroom interaction with students. Assessment of learners' effort and motivation is recorded on the learning platform; however, because of an interoperability issue with the learning platform and MIS, this is currently limited. More commonly, students' work posted on the learning platform is formatively assessed "through teachers monitoring the level of student engagement and completing weekly records of their work and progress in [the MIS]". These assessments provide information for students' learning mentors and are

important for keeping learners motivated and showing that their efforts are appreciated. Regarding summative assessment, students' work for formal accreditation (eg GCSE coursework) is not currently carried out in Bridge Academy Online, with the exception of some ICT coursework when the exam board accepts computer-based outputs.

No pedagogic tools are built in to the learning platform. Bridge Academy Online records all the sites that learners access from the internet. Students' work is stored on the learning platform until it needs to be moved to free up space in the system. Staff can easily access each student's work on the learning platform and find out quickly which tasks students have completed and which ones are outstanding. Learners can also check easily what work they still have to do.

Is there any evidence that this formal online learning model is scalable?

At the core of the Bridge Academy Online model of online learning is the transfer to learners of responsibility for organising their learning one day a week. Moving to this new organisation of the school week was "an act of faith" for the Bridge Academy. The headteacher believes that this transfer of responsibility has had a positive impact on learners' motivation, and that what has succeeded for learners at the Bridge Academy would be very likely to be beneficial for all learners. He believes that the organisational model can be adapted to suit the needs of each school.

At the Bridge Academy, it has proved important to make Monday the day for home study for all learners, because this provides staff with time to produce resources. The headteacher thinks that other schools might prefer to stagger the week, with different year groups working from home on different days, and that each school will need to consult parents and the community carefully before moving to this new way of working. At the Bridge Academy, all the learners we interviewed told us that they like working at home on Mondays and being able to go online and access their tasks without distractions. There is no great temptation on Monday mornings to go out looking for trouble, and perhaps it helps that learners travel to the Bridge Academy from a wide catchment area, so not many students are free in any one area.

The learning platform provides a high degree of structure as a repository for tasks and completed work, and an administrative tool that assists both teachers and learners to keep track of work done. Broadband access to the internet, through Bridge Academy Online (and therefore with a degree of filtering), provides the opportunity to increase learners' creativity. However, the learning platform itself is not perceived as ideal for all learners; rather, it has been chosen for Bridge Academy Online because of its ease of use, achieved by providing a simple structure and resources.

Key factors influencing success at the Bridge Academy, which might not be scalable, are: Bridge Academy Online is a whole-school approach; Bridge Academy Online is

given a very high priority by all staff; and the numbers involved are small, with class sizes of four to six students.

The cost of providing the package (computer, printer, software, broadband access, etc) to every student for use at home is currently just under £500. We consider that other schools could also provide this package. By providing learners with their own computers for use both at school and home, schools could save money by purchasing far fewer workstations for specialist ICT rooms. Bridge Academy Online has been established with an £80,000 grant from the Innovation Unit, and is seeking sponsors to help it sustain the model in the long term. However, it may be possible to cut costs very significantly by moving to the new mini laptops currently for sale at around £200, in which case scalability would be greatly increased.

In what ways has the introduction of online learning had an impact on organisational issues?

The introduction of Bridge Academy Online has had a major impact on the entire range of organisational issues.

Reorganisation of the timetable is an integral part of the model. A decision was made about which subjects would lose contact time to free up Mondays, and it was decided that core subjects (English, mathematics, ICT and science) would each reduce from three to two contact lessons a week. Working practices for teachers changed, with some planning, preparation and assessment time for teachers being allocated on Mondays. This reorganisation of the timetable has the advantage, according to staff, of giving an extended period to produce resources, but the disadvantage that teachers must do more work in the evenings during the week – last-minute preparation and marking work for the next day. Working practices for learners changed radically with the introduction of self-managed learning every Monday. Learners are able to use Bridge Academy Online and the internet at any time when they are at home; however, Mondays are when the majority of learners go online and start work on their tasks.

ICT teachers at the Bridge Academy have been using the learning platform for three years, and its use is well embedded (apart from the technical problems through lack of interoperability with the MIS). Teachers in other subjects are engaged in an ongoing process of changing their teaching practices to integrate Bridge Academy Online into the classroom. Since September 2007, when Bridge Academy Online was introduced for all learners, the ICT department has led the way, partly because in ICT lessons students have access to their own workstations. The provision of laptops for students in other subjects has only recently been completed. In addition, many resources still exist in a paper-based form; it is more convenient to use these in the classroom than to create new ones for the learning platform. However, all teachers agree that teacher–student interaction in the classroom is at the core of their pedagogy and should not be replaced by virtual teacher–learner interactions

(although online contact through the learning platform is a useful addition, specifically to support learners on Mondays).

For Bridge Academy Online, very careful management of staff training has been required, and the Bridge Academy has trained students in the use of the learning platform and the online environment. Students easily acquire the necessary skills during their induction and, because they use their skills regularly, have no problems. Non-teaching staff – mentors and learning assistants – are also trained in using Bridge Academy Online. Initially, one member of staff was trained from each department. Thereafter, staff have needed ongoing training; small-group work on a weekly basis has proved effective, often led by the assistant headteacher in charge of ICT. The assistant headteacher said “You have to invest whatever they need”, noting that some staff “have done the training three times and they ask the same questions every time”. He sees the secret of success as being that Bridge Academy Online is a school-wide initiative, built into a school cycle of continuing professional development: “It’s easier when you say the whole school is doing it, because there isn’t anywhere where people can hide.”

The opportunity to use the system for routine work immediately after training is seen as essential, with several staff saying they easily forgot their new skills if they did not use them. A subject leader who is not an ICT specialist was given additional training and asked, by the assistant headteacher in charge of ICT, to take on the role of training peers. Cascading training proved so successful that the assistant headteacher told us “another time I would do it all like that”. One teacher confirmed the importance of this approach, saying she found it easier to confide in a peer because “with the assistant head, you can never avoid the feeling that he is the one who observes your teaching” (ie that he judges teaching performance).

Both managers and staff stated that having development time available on Mondays, when there are no learners in school, has been a great help. Managers have been conscious of phasing development work: during the first three months the emphasis was on staff training, and then the focus was able to shift to the production of materials.

We see the headteacher’s role as crucial in consulting the borough officials and parents, and providing a vision and strong leadership to staff. The collaborative ethos of the school and the habit of staff helping each other through numerous challenges (regarding learners’ behaviour) seems to have been important.

The Bridge Academy now provides a new service to homes: installing and maintaining the home computers. A senior technician does this work and, to increase capacity to enable this, a second technician has been employed to work alongside him in the school.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

Staff told us that learners now work at home on a regular basis, using their computers and Bridge Academy Online, and that previously they scarcely ever did homework; this was confirmed by all the students we interviewed. The main factor seems to be a shift to learners taking responsibility for the tasks they are set on the learning platform because they are expected to self-manage and undertake this work at home. Staff estimate, on the basis of records kept by the learning platform, that on average students do five hours' work a week at home. Students gave a lower estimate of time spent: between one and four hours. However, learners all appeared to enjoy the work (there were no complaints or negative comments). One student said the advantage was that he now did all his homework on Mondays and was free to do what he wanted in the evenings after school; in this case, the student may not spend more time on formal learning tasks at home than he did before, but his motivation to do them has been transformed.

Because the introduction of Bridge Academy Online is very recent, it is not possible to give firm evidence of improvements in attainment. However, staff spoke very positively about their experience in moving to the Bridge Academy Online model. They told us that the induction process for the learning platform is very effective, and students, on the whole, manage the system well and complete the tasks set.

Staff believe that home visits to install and maintain computer systems have brought about a much stronger relationship between home and school. Parents, or the learners themselves, contact the school when something goes wrong with the home computer, and a home visit is arranged. The technician who installs the systems told us "I get them to help me open the boxes. They are excited. It's like Christmas. Even the worst kids here are really excited. My relationship with them has changed."

The assistant headteacher gave three examples of Notschool.net having changed a learner's life. In relation to Bridge Academy Online, he said, "it is early days", but he gave the example of one student whose attendance and motivation have improved dramatically: "Her work is up to date. It [Bridge Academy Online] gives us a very positive start with the young people. It's a way in. We get to speak to their families; you can phone up to talk about how they are doing in BAO [Bridge Academy Online]."

We were unable to interview parents. However, the assistant headteacher told us that parents have responded very positively. Some parents who came in for one or two training sessions on the learning platform "were amazed how easy it is to get the information". Parents can see their child's learning plan for every subject and add a comment. One parent's son was suddenly willing to do work with her: "you create a learning space at home where there wasn't one before. All kids want to achieve at school... they'll all find something [now they have this resource]."

The learners we interviewed all said that their parents now knew much more about their school work than previously. They said their parents liked this.

What issues are associated with remote online provision of formal learning?

For the institution:

An unexpected cost has arisen as a result of numbers of learners on the roll continuing to increase during the year. The assistant headteacher had presumed that numbers would stabilise after the first term, but referrals have continued from other schools. Increasing numbers of learners increase the costs of the model because every learner is given the full package of digital resources to use Bridge Academy Online at home.

We recognise the potential for students to waste time on Mondays by using their computers for trivial things. During home visits, the technician can download a record of the internet activity that has taken place, and so far no major problems have been encountered.

We see the potential for learners to cause problems for the community through bad behaviour while not at school on Mondays. In practice, neither the staff nor the learners we spoke to gave any evidence that learners have caused problems in the community.

We also see the potential for parents to be unable to provide care for their children while they are working at home on Mondays. Neither the staff nor the learners we spoke to gave any evidence that this has been a problem. The learners we spoke to all had a member of their extended family at home during the daytime.

For teachers:

A significant proportion of planning, preparation and assessment time is now on Mondays and, although this is very useful in enabling teachers to develop resources, it creates new pressures on them to prepare work in the evenings from Tuesday to Friday, ready for the next day's teaching. This out-of-school work has not been a major problem and has been overcome by teachers "getting used to it".

In terms of teaching, the assistant headteacher pointed to the need "to create a new meta-language for pedagogy". The technology in Bridge Academy Online is "not particularly innovative... the innovation comes in the way you interact [with the learners]". As well as teachers learning to interact with learners in a new way, the assistant headteacher thought that Bridge Academy Online would necessitate the parents becoming involved in observing and managing their children's learning, and he anticipated that parents may struggle.

The assistant headteacher acknowledged that the new system of monitoring students' attainment has proved very time-consuming and has seriously restricted the time available on Mondays to develop resources for the learning platform. The assessment practices are time-consuming because of the lack of interoperability between the learning platform and the MIS. Records are already kept in the MIS through registration, behaviour management and assessment management facilities, and the hope is that very soon it will be possible to transfer assessment data directly from the learning platform. If monitoring is recorded on the learning platform, a report can be generated and sent home to parents each week, but this will only be worthwhile when data on the learning platform can be transferred to the MIS electronically. Otherwise, teachers have to duplicate effort to transfer data manually. Originally, staff graded the work on the learning platform for one year group each week, but the time spent on this is being reduced. The assistant headteacher commented: "At all times in this school, we have a practice of closely monitoring how the learner is performing in each subject... and, at the moment, the technology is holding us up."

For learners:

The learners we interviewed said that other members of their families used their computers (in one case the family owned another computer, but the computer did not have broadband; in another case "my mum comes and asks if she can use my printer"). However, it was not seen as a problem that other people used learners' computers; in fact, it probably made the computer the focus of social interaction in the home (since families must put the computer in a shared living area, not a learner's bedroom).

One issue for learners, observed during a walkthrough, was difficulty with spelling. Although the learning platform has quite good search facilities, using just initial letters of a word, the young person observed had not learnt how to use these abbreviations, and repeatedly failed to find parts of the system because of misspelling the full word.

From interviewing learners, it appears that not all features of the learning platform are used; for example, one learner told us that he was not aware that anything had been entered in the calendar.

Does engaging with informal online learning affect the learner's willingness to engage in formal learning either at the same time or later in life?

It is too early to provide any evidence, but our impression from talking to learners and staff is that the Bridge Academy Online model has an extremely beneficial effect on learners' motivation. Staff see the provision of learners' own computers at home as giving the learners a concrete indication that they are valued and respected, and showing that the school places emphasis on the importance of students' learning.

The aim is to get learners back into mainstream schools or colleges, and when they leave they will keep their computers (“there will be no clawing back of equipment to re-use it”). Two or three learners interviewed spoke of a wish to continue formal learning after they leave the Bridge Academy; again, while this is not evidence that the online system itself is a cause, learners did say that they would continue to consider courses with an online element.

City Technology College Kingshurst

City Technology College Kingshurst is an independent school for those aged 11–19, in North Solihull, Birmingham; it has 1,400 students.

City Technology College Kingshurst opened in 1988 and was the first of the city technology colleges created by the Conservative Government in the 1980s; these were non-fee-paying schools funded by the DfES with business and industry sponsors. Like other city technology colleges, Kingshurst is set to convert into a city academy.

City Technology College Kingshurst is an International Baccalaureate World School. As well as the International Baccalaureate, Kingshurst offers a range of BTEC National Diploma and National Certificate qualifications.

The school has grown from an eight-form entry to a 10-form entry without an expansion in space. Approximately 93 per cent of students have access to a computer and broadband at home.

3E's Multimedia is the school's business wing/commercial arm which develops multimedia educational content for City Technology College Kingshurst and markets this to clients. 3E's Multimedia also provides some support to teachers at City Technology College Kingshurst, although it is independent of the school's technical team. Some members of the team are active teachers at Kingshurst and have timetabled non-contact hours in which to design materials; for example, one senior content writer is the school's co-ordinator for Key Stage 4 science (and also works for OCR).

Rationale for introducing online learning

Since it opened, City Technology College Kingshurst has had some capability to deliver the curriculum using ICT. In 1989, it was possible for students to work on site on material which had been uploaded internally.

During the early 90s, the science department worked in partnership with a company that has since become a successful developer of online learning platform architecture and electronic content. The school produced interactive learning materials appropriate for GNVQ intermediate science at Key Stage 4, which were published as premium content on the learning platform. The school also had some involvement in the development of the learning platform itself (research at the school focused on uploading and downloading files and issues related to online curriculums).

3E's Multimedia developed a set of interactive learning resources – ClickScience – aimed at Key Stage 4, covering all the topics on the new National Curriculum. ClickScience is commercially available to schools for £2,500 a year. The school took

over ClickScience independently, since it was costing a phenomenal amount to access the science modules via the owners of the learning platform – “paying them for our own material”.

Model of online learning

The school uses a learning platform hosted externally, which combines administrative tools with the handling of content.

Students and teachers have their own space online and teachers can build up their content by uploading pages. Pages can be accessed remotely. The learning platform e-portal allows teachers to upload course materials, but both staff and students stated that there is considerable variation in the extent to which this facility is utilised across the institution. Teachers told us that the curriculum area with the strongest presence in terms of online content is science, but that other teachers have developed material for the International Baccalaureate.

The school also has a growing online resource of video material. All the school’s science, geography and English DVD resources have been added, and teachers have on-demand access to films and TV documentaries via electronic whiteboards in classrooms.

All students at City Technology College Kingshurst have access to the learning platform, but more content is available online in the upper school. Hotmail is banned for lower years, so the learning platform’s email facility is popular with that group as an alternative. EAll staff and students have a file area; everything done at school is in this area and can accessed from home.

Teachers do not mark work online, but can upload work and download at home, or vice versa.

In 2006, City Technology College Kingshurst conducted a pilot study of a remote online learning week, which yielded encouraging results.

For a week of the summer term, 26 students in Year 10 studied one unit of science. The students worked from home every day except Wednesday, when they came in to do practical experiments. At home, they worked through activities on ClickScience, and support was provided by a teacher who was available to answer questions and deal with problems live via email. On the Tuesday there was a 30-minute live streaming video of a teacher performing an experiment. Students were told to be online at a designated time to view the video.

Students were asked to submit their work electronically, and a deadline of 9:00pm each evening was established. The students were given advice about how they might organise their timetables but otherwise were left to manage their time.

All the students we spoke to reported that other family members were out of the house for all or most of the day. After the pilot, all 217 students in Year 10 spent one day working online from home to demonstrate that this was technically possible on this scale. In a survey of parents conducted by staff, all but three responses were positive about the experience.

Some students who participated in the pilot and are now in Year 12 were interviewed. All the students interviewed said the remote online learning week was a positive and enjoyable experience. They especially liked the live streaming demonstration and said they would like more of these. However, one female student found the experience a little impersonal and indicated a preference for face-to-face contact: “When we did the video link classroom thing... I didn’t feel like he was teaching me – it was being broadcast on the internet, to anyone who was there – I didn’t feel it was necessarily for me.” The teacher said he would have preferred to live-stream the day after he had received questions and problems so he could discuss them with the students.

Given the opportunity to try something similar again, City Technology College Kingshurst would pay more attention to setting up peer learning groups. In spite of the lack of any formal designation of chat groups, to some extent these arose spontaneously, according to students, who said that during the trial they communicated with peers via email either via the learning platform or personal email accounts.

Some students reported that they missed the social contact with their peers. One student said she ran up a large phone bill chatting to her friends and that she ate a lot of food because she had easy access to it at home. As a teacher put it: “by the time they got in on Wednesday, it was like they hadn’t seen each other for ages”.

One downside that the science teacher noted was that he was swamped with marking during the week.

The school is about to embark on a low-cost-laptop initiative for all students in Key Stage 3. Once students are equipped with wireless laptops and the timetable is adapted to make lessons flexible, the school’s vision is that students will be able to study anywhere, at any time. One teacher commented that, if at home, students will be more relaxed than in a school classroom, which can function as a “50-minute prison cell”. Within school, students should be able to be anywhere in the building, and an informal cyber-café atmosphere can be provided. In warm weather, students will be able to study in the park. This teacher considers that online learning, combined with tools such as MSN, could meet students’ needs to socialise in a way that working offline on a computer at home does not.

ClickScience:

For science, all content and learning activities are available online – the GNVQ intermediate science content is entirely written into the scheme of work. However, content is also available offline, and the teacher made different use of the online content with different student ability groups. In some lessons, the teacher reported not using computers at all but instead printing out material from ClickScience (generally templates with parts for students to fill in) to produce a booklet. The lower ability group found these materials very motivating. The teacher reported that he used the online content with the lower ability group but, after being very keen initially, their motivation waned within a week or two. “If the course was all on memory sticks, they lost them and lost interest.” The top sets, on the other hand, “loved using computers and the internet”. But they also appreciated being able to print out their work, especially e-portfolios. Teachers stated that, with presentational formats such as e-portfolios, it was rewarding and motivating for students to have something material to show for their work, and that improved presentation tends to boost students’ pride and self-esteem. Hence, in practice, 10–20 per cent of content and activities are used online with lower ability groups, increasing to 90 per cent with top sets. Science teachers recognised that it is in the nature of science, though, that a certain proportion of work must be done practically and cannot be learnt just by reading; thus, although the activity may be set online, it must be carried out offline. We consider that this will clearly be different for other subjects.

During the one week of study from home, teacher–student communication was online on the four days that students worked off site and entirely face to face during the practical on Wednesday. In other situations, the communication is always a blend of online and face to face.

Interestingly, students were happy to send work to teachers electronically, often using the internet as a buffer to avoid criticism; submitting work online was thought to be preferable because it avoids the possibility of a face-to-face challenge. On the other hand, one teacher commented that delivering the bulk of teaching online gave more time for him to challenge students one to one, whereas in wholly face-to-face class teaching he might spend little more than a minute a year interacting with some students individually.

The impulse for student–teacher emails comes from the students – it is not structured into the system.

In terms of student–student communication, students make wide use of SMS via mobile phones, and email, but not specifically for their learning. It is significant to note that those interviewed about the week working from home reported that they did not meet friends face to face while at home, but made frequent phone calls. By the time they came into school midweek, though, they were feeling starved of interaction

with their friends. It therefore appears that students' communication with their peers alters depending on whether they are in or out of school.

Formative assessment, in the form of marked science assignments, is entirely online, with homework set, submitted and returned via email. When formative assessment online consists of computer-marked tests, students are redirected to material that will enable them to revise what they have got wrong. Summative assessments, in the form of end-of-course examinations, must still be submitted on paper, although the drive from the QCA, DCSF and RM is towards online assessment. One teacher commented that, even when exam boards have moved to allow computerisation of exams, with some form of analysis of results fed back to schools, these assessments are still in traditional format – exams have not yet been devised that make use of the interactive capacity of computers. In this teacher's opinion, if online learning does not have a qualification at the end, students are much more reluctant to undertake the work, and schools are not willing to teach a course. Currently, assessment is still perceived by staff at City Technology College Kingshurst as driving learning, instead of the other way round.

In spite of nominally being a 'paperless' school 10 years ago, there is 100 per cent paper duplication of records online. According to the teachers we interviewed, Ofsted inspectors currently insist on paper-based records.

The International Baccalaureate:

Another notable example of online learning was evident in the International Baccalaureate (IB). Students take six subjects, with three at high level and three at standard level. A further module is the philosophy-based 'theory of knowledge', with assessment based on essays and presentations. Students also undertake 150 hours of CSA: 50 hours each of creative (C; eg music), service (S), and active (A; eg playing for a sports team) activities.

We were told that some material relevant to the International Baccalaureate is available via the learning platform, including course information such as dates of submissions, and notes and help hints for the extended 4,000-word essay.

Recently, International Baccalaureate students in Year 12 had online access to presentations given by those in Year 13. They watched one 50-minute session at home, which was streamed live. Students could download the presentation to watch again, and sessions were also recorded and archived for students to watch in future. However, the learner who described this activity was not aware of any students who had taken up the opportunity to watch the archived sessions. In spite of problems with the chat facility between home and school during the live presentation, the student also commented that remote viewing was useful and that the distance facilitated more objective analysis than live observation would permit.

Is there any evidence that this formal online learning model is scalable?

We see a key element of online learning at City Technology College Kingshurst as the role played by the development team. Therefore, it is difficult to say how scalable this model is in other settings which do not have a dedicated team with non-contact hours to develop material. Content is developed on site by an experienced team of developers who share a passion for innovation in education through ICT. The science department already markets ClickScience to about 300 schools and provides training in its use; this is a measure of how far online provision has been extended to other schools.

Given that online learning at City Technology College Kingshurst is largely facilitated on site, it is no surprise that staff reported access to computers as the primary factor limiting students' engagement with online materials. Staff thought they had viable software, training and high quality content in place, but access to hardware was a problem: "We struggle at certain times of the day... because we are a successful college." Presumably Kingshurst lacks rooms with enough computers.

In what ways has the introduction of online learning had an impact on organisational issues?

Staff had some introductory training for the learning platform, but this was not thought, by the teachers we spoke with, to be sufficient to guarantee its use by staff: staff need regular first-hand experience in using such technology to become confident with it and exploit its benefits.

Online learning has had an impact on working practices, but teachers still highlighted various reasons for continuing more traditional approaches:

- Staff still need to be assigned to groups; students will undoubtedly still require one-to-one support, in spite of becoming more independent.
- Staff need to be available during those times when students are working online and for emergencies (although it was suggested that online learning might cut down staff hours).
- Parents need confidence that children are not left to their own devices.

The deputy headteacher thinks that timetabling is critical to the two modes of working. A rigid timetable, fixed the summer before, requires teachers and students to be in particular rooms, studying particular subjects, at fixed times each week. In the view of the deputy headteacher, a flexible timetable enables students and teachers to work in any part of the school or from home, from a cyber café or library, at times to suit them, and this would further help resolve the school's physical limitations for the number of students it has.

In discussion, it was apparent that there are real difficulties in managing the transition from traditional learning to any time, any place learning. Trying to enhance

a school with ICT was compared to switching the side of the road that people drive on: in many respects, it would be easier to make one radical change overnight than to have a transition period.

We see online working as requiring a change in style of pedagogy. Teachers have traditionally been perceived as 'experts'; however, one teacher commented on a change of mindset: "I don't mind being wrong, learning from them... we're in it together." The teacher said that teachers have also had to rethink their style of presentation, and think more like advertisers, presenting a limited number of words on each screen rather than reproducing wordy textbooks.

The teacher also explained that, in traditional teaching styles, only the teacher looks at a student's exercise book, whereas in online learning, students also send their work to other students for comment, or may publish online to a wider audience. In this teacher's view, online working combines well with newer, multimedia modes of presentation, which students tend to be willing to try out, if given the opportunity.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

Evidence from a number of sources shows that online learning, both remote and on site, enabled personalised learning. In particular, the following example suggests that online delivery of content offers more scope for students to go further with their learning if a topic particularly interests them. A science teacher described setting a task for students to research environmental factors that affect the human body. One student took an interest in the topic and asked to research two factors instead of one. She consulted a variety of online resources, understood the content and effectively filtered the material returned by her search engine. The resulting work was "far in excess than I could ever dream of... brilliant". The teacher acknowledged how, with the appropriate research skills, students can use the internet to "stretch their knowledge and understanding and interest".

Students who were poorly motivated or lacked self-discipline were reported by other students as having achieved little work during the week spent doing science online from home. The student interviewees considered that, for such students, deadlines and penalties for not completing work might have been more effective. One teacher expressed the view that self-discipline needs to be introduced early (beginning in primary school) and independence gradually increased, with stricter control and deadlines for younger students, and progressively freer discipline as students get older. So far, both teachers and parents are seen by this teacher as having been "spoon-feeding" students, relying on the teacher to "get them through" rather than on the learners themselves.

Leaving aside the desirability of online delivery of learning content in terms of its impact on learners' motivation, for example, there seem to be practical reasons for

moving from paper-based delivery to online handling of materials. It was explained that the content of the OCR Nationals, for example, ranges so widely that a conventional textbook could not do full justice to them. In this teacher's view, content delivery is only really viable through ICT, since, because of the way curriculums are frequently revised and updated, publishers are naturally reluctant to offer textbooks that may have limited relevance. The teacher thought that adding content to online resources or editing text is much easier than updating a book. Many courses, including lots offered at City Technology College Kingshurst, are structured around a generic scheme to which different optional modules are added. In these cases, he said, including all potentially relevant material would create an overly large textbook. The ease of editing digital texts was cited by teachers as being of considerable practical value to them, whereas re-editing paper-based material is seen as laborious.

In classes using online delivery of lesson content (eg using ClickScience), one teacher thought he had more opportunity to provide individual support for students. There appears to be an obvious paradox in the idea that online delivery promotes face-to-face teacher-student interaction. The teacher suggested that, after the initial teacher-to-class presentation, he was able to speak one to one with students and provide assistance and support to those who needed it, because the rest of the class were able to work unsupervised at their own pace.

The problem of students losing work was seen by staff to be common to both paper-based and online classes: teachers thought that students were as likely to lose data sticks as they were handwritten essays. However, as one teacher put it: "It's worth losing electronic content every now and then because of the ease of editing." This teacher sees access to the internet as providing a further range of materials far wider than any teacher, or indeed any library, could provide. The role of the teacher has thus changed, he said, from a transmitter of information to a guide to sources of information.

We were not able to interview parents, but the results of the parent survey conducted by City Technology College Kingshurst after its home-learning day suggest that parents are, on the whole, positive about the experience. Parents could see some of the work their children were producing, and in some cases helped with it. Only three parents expressed concern that their children might not work if they were at home.

What issues are associated with remote online provision of formal learning?

For the institution:

It appears that, to provide remote online learning, enabling factors must be present on a number of different levels: as well as the appropriate technological infrastructure, flexible working practices are critical and may require a shift in the managerial mind-set. One teacher suggested that schools lag behind universities in

the flexibility of their timetabling: “We have the systems and the material, but the management lags behind the ICT.” For the next academic year, Kingshurst has proposed staggered starts to the school day which would enable more material to be delivered remotely, with students working from home in the mornings and coming into school in the afternoon.

A number of issues related to learning platforms were highlighted by one tutor:

- Schools often felt pushed into delivering the curriculum and managing students through learning platforms.
- The right choice of learning platform is critical, but schools often do not have a choice, because of the prevailing system in which suppliers of learning platforms bid to have the local authority select their systems for all the schools in the local authority’s control. (City Technology College Kingshurst, as an independent school, is outside this.) The choice of learning platform is not in the hands of those who will use it: teachers and learners.
- There was a concern that learning platforms tend to be too monolithic to effectively serve the diverse needs of different schools or different departments within schools.
- The learning platforms impose a need to standardise the specifications of equipment used by students or teachers from home.
- There was also a worry that learning platforms are becoming popular as management platforms, oriented around recording and tracking and data analysis rather than their ability to support learning and teaching. The need for an institution to have a conventional learning platform was questioned. It was argued that an expensive recording and tracking system is unnecessary since it needs only to integrate with the MIS and not necessarily the learning materials. The school has not yet dealt with issues such as how well a learning platform needs to communicate with the MIS.
- It was suggested that facilities that emulate the models of social networking sites (personalised homepage, blogging, etc) are largely a waste of time on learning platforms because students prefer to go to the sites they are familiar with out of school. Learning platforms need to be simple and straightforward.

During the Year 13 presentations online to Year 12 students, there was a chat facility at the bottom of the screen for the younger students to ask questions. A student said communication was hindered by a time lag between the home users asking a question and those at school receiving it, although others at home could see the question instantly. The school says this mainly technical issue could be overcome without too much difficulty.

Another technical issue is that the school would like to be able to teach 10 groups at once, using live streaming. Interactive whiteboards are in place, but the internal bandwidth is not sufficient. Thus, currently, students are better able to receive the live video from home than in school.

A pedagogical issue raised by the assistant principal is that an online lesson does not necessarily lend itself to the three-stage format recommended by Ofsted, but a school risks being labelled as a failing school if it does not adopt this format. A report by Ofsted in 2000, the assistant principal said, recognised that this three-stage format is not always appropriate, but staff at Ofsted have changed since then. Closure of failing schools is perceived by the assistant principal to discourage innovation.

The assistant principal talked of a need to strike the right balance between being vulnerable to security risks and being over secure. It was suggested that technical teams tended to be too security minded. The assistant principal reported that he could not use the DVD drive on his laptop. If students are expected to access the school's content from home, schools "need to trust people a little more... you can never be 100 per cent secure".

For teachers:

One teacher raised a number of issues (set out below) in relation to online assessment, which is increasingly becoming computerised:

- There is a danger that online assessment offers limited scope for alternative answers: alternative, but equally valid, answers can be counted as wrong if the correct response is restricted to a single interpretation.
- Question-writers need to think very carefully about their questions ("what is written as a question needs to be absolutely correct") and take into account, for example, the cultural backgrounds of the respondents and the literacy and numeracy skills presupposed by the assessment.
- Online assessment is that it may not address different learning styles, and thus, while it may provide a useful indicator, it does not tell the complete story about an individual learner.

With the above caveats, online assessment was seen as particularly effective when used formatively. Online tests are attractive when they exploit the unique affordances of the technology, for example those that enable and guide learners to retrace their steps and review points with which they had difficulty.

The teacher suggested that the automation of some aspects of administration and assessment had the danger of encouraging teachers to focus more on the result than the individual: "the balance is shifting to looking just at numbers not children". The teacher manually entered his students' test results into the system, even though

this could be accomplished automatically, so he could “think about the student” as he put them in. In his view, a teacher can consider a student’s potential in a way in which averaged statistics based on the results of tests do not.

One teacher said that delivering materials and handling administration online within the physical constraints of a traditional classroom had implications for teacher–student interaction. The opening of lessons was particularly problematic. In most classrooms, eye contact with students was hindered during registration by the positioning of the teacher’s computer: “You spend five minutes with your back to the students.” It was thus difficult to start the lesson in contact with and in control of the students.

In this teacher’s view, being clear about learning objectives should enable easy tracking of students’ progress and reduce the work in report writing, but some teachers feared that records would be used to compare teachers’ success.

Our impression is that having online access to assessment tasks, learning and knowledge has subtle implications for the role of teachers, for example in challenging the notion of the teacher as an expert in a field. Online content was seen by teachers to be of huge support when teachers are outside their own specialist areas. The assistant principal gave the example of being able to guide a student easily to ClickScience materials about Darwin and genetics, despite not being a biologist himself.

Both staff and students mentioned a number of distractions from their official tasks when working online, including social networking sites and online games. Both groups thought that students needed to exercise self-control and have a mature attitude. Both groups also mentioned the need for teachers to set reasonable deadlines, enforced with sanctions and punishments. It was suggested that there was a broad reluctance to set deadlines too firmly when, with one eye on performance league tables, teachers extend deadlines to ensure students do not go on the record as having failed.

For learners:

Students working at home reported some feelings of isolation and missed the social interaction of school. One student described having friends in school with “a similar work ethic – we bounce off each other”. The sense of separation also came out of not communicating directly with a teacher. Both students and teachers acknowledged a need to facilitate communication in online learning. A teacher put it simply that “students still want a book and a teacher – you can’t have everything through ICT”. Indeed, as the teacher argued, some students “feel there’s so much ICT that they aren’t being taught properly”.

The teacher also recognised that undergraduates still need to use libraries and books and journals – “You need to know how to use a book” – so exclusively ICT-mediated content was undesirable, and a blended approach was preferable. In support of a blended approach, one student noted that a published textbook can offer a more efficient way to obtain information than research using the internet. The student recognised that books are usually geared specifically towards the requirements of particular courses, and the language targeted at particular age groups. The internet, however, can provide more memorable learning because it combines text with visual information, sound and video.

Does engaging with informal online learning have an impact on the learner’s willingness to engage in formal learning either at the same time or later in life?

Students said that if they were to apply for an educational course in the future, they would have no hesitation in selecting one with a significant amount of online learning, but they agreed that a blended approach was preferable to exclusive online delivery.

Kirklees Collegiates: Spen Valley Sports College

Kirklees Collegiates is a partnership of Kirklees Local Authority, the Learning and Skills Council, Calderdale and Kirklees Careers, together with local schools, colleges and work-based learning providers.

Kirklees Collegiates offers online learning across Kirklees, from primary through to post-16, including a collegiate course programme (school, college or work based), Young Apprenticeships (school and work based), new 14–19 Diplomas, as well as electronic individual learning plans (EILPs). There are 25 schools, four colleges and 10 work-based providers collaborating. At present, there are 50 collegiate courses, involving around 600 students moving between sites.

One of the collaborating schools – Spen Valley Sports College in Dewsbury, West Yorkshire, which caters for students between the ages of 11 and 16 – was visited by the researchers. There are currently 886 students on the roll. Students are working towards GCSEs.

One of the teachers interviewed, as a PE specialist, is involved with offering dance to students from other schools, but none of the students interviewed was taking part in courses that involved other sites.

Rationale for introduction of online learning

The aim of Kirklees Collegiates for Learning (KC4L) was to enable students aged 14–19 to go to other schools to take courses not offered by their own institutions, for example GCSE photography, health and social care, hospitality and catering, dance, hairdressing or business studies. Students travel by bus or taxi, usually on a Wednesday or Thursday afternoon, to the alternative provider, and are set about one hour's homework online.

Before KC4L, a committee of heads decided to adopt a common learning platform across the whole local authority. Spen Valley, at that point, was using a different learning platform, but mainly as a document repository, not for online learning. The school switched, but some schools still use other platforms. The switch caused some problems for Spen Valley staff, who not only had to familiarise themselves with a new system, but also found that some of the materials they had created were not transferable. Other local authorities or schools that use the same learning platform can share each other's materials. According to the e-learning managers, KC4L has insisted that, if a student is taking a collegiate course, the institution offering it must allow that student to access its learning platform from other institutions.

Other advantages perceived by e-learning managers are that the learning platform has built-in software, and teachers can easily create content or set up a community unaided. The learning platform comes with some copyright-free content, but the

managers say that teachers still need to develop additional resources. Teachers need training to install some applications such as BBC iPlayer.

The head of Spen Valley, being an enthusiast for the potential gains of online learning, decided that, since the learning platform was provided at no cost to the school (as part of a project), it was an excellent opportunity to try out online learning and see what benefits it could bring. For the head and director of e-learning at the school, the value of online learning is perceived to be that it is a tool, in a medium with which most students are now familiar, which enables an approach to learning anywhere, any time, and “breaks down the barriers of bells, 50 minutes, 1 hour” (lessons). Students can access the learning platform from home, so learning is not compartmentalised into “this is what you do at school, in these lessons”. Encouragement of online learning, the headteacher says, in part recognises the value of lifelong learning and how this might take place.

Model of online learning

The local authority considered various learning platforms and chose the one that seemed the best available tool for collaboration, which was the primary use that it planned.

The school recently adopted a comprehensive online revision and exam practice service covering over 60 courses for SATs, GCSEs and A-levels, providing instant automated feedback on each student’s performance.

KC4L’s learning platform provides a community area, used, for example, by staff for developing Diplomas. E-learning managers reported that the team has access to the community policy documents and access in between meetings.

Courses within the science department:

The science department makes the most use of online learning within the school. Approximately 80 per cent of materials are available online – there is little use of books or ‘chalk and talk’. About a quarter of lessons in class use IT. Outside the classroom, the amount of online work varies by ability: more able students do five to six hours per week, less able students manage less. It is possible to monitor, through the revision service, where students log in, and to tell whether work was done at school or elsewhere.

About 25 per cent of communication between teachers and students takes place online. Students send their work by email to teachers, who return it online with marks and comments. If work is submitted sufficiently before the deadline, students may improve it in the light of the teachers’ comments and resubmit it to improve their grades. Students still ask for help in class, but will send queries by email for help with work from home.

Online communication between students is regular, but more for social than learning reasons. (Teachers can read email posted on the school system by students.)

The school uses science GCSE tests online for summative purposes at Key Stage 4, although the qualification is gained via the usual paper-based examination. There is a facility to mark and certificate courses, but this is not used. No pedagogical tools for teachers were mentioned by staff.

Dance:

Spenn Valley offers GCSE dance – an example of a collegiate course.

The teacher checked that all students had internet access in advance: “For this course, the internet is key, especially for the students at other schools... If they didn't have computers at home, it would have made it difficult.”

Lessons are a mix of practical and theory. There are no relevant online revision service tasks for PE and dance.

Year 11 classes involve students from two other schools who engage in three hours' learning a week over two years. Students have two hours on Thursday at Spenn Valley and then a one-hour online lesson at their own sites: “I teach them from here [Spenn Valley] via the internet for one hour in their own school.” Two classes on different sites take place simultaneously with the aid of a cover supervisor. Work is set on KC4L, which students access online, complete and send back online, and work is marked and returned online. Revision is done at home.

Almost all content is online, in a structure which is easy to follow. For about 30 per cent of the course, students are expected to study online; the rest is face-to-face practical. About 25 per cent of activities are online, including research activities and databases. Extra tasks for learning are in the form of online games, such as word searches or quizzes. Students can and do set up their own quizzes for each other over KC4L.

A template is put on the learning platform for assignments, which are word processed then returned by email through KC4L. Feedback on assignments is generally face to face: “I should use more online”, the dance teacher said, but thinks that students get more out of verbal feedback.

Online communication between the teacher and students consists of a couple of emails a week – “not much really”.

When classes are running simultaneously, students use synchronous chat via KC4L and ask each other questions; this system was set up by the e-learning managers and “worked well”, monitored by the teacher. The teacher started one week with general questions, just to see if it worked, and the following week gave dance-related

questions to the home group to ask to those in other schools. She is not sure whether students use the chat for informal communication. Students use email with each other at home, but not about dance.

No pedagogic tools were mentioned. Paper registers are handed in to administrative staff, who add these to the MIS. Staff tried to take registers online, and are still researching other means, including handheld devices, but had network problems. There is a system for monitoring online work so that individual teachers are responsible for ensuring that students complete work in their subject.

Is there any evidence that this formal online learning model is scalable?

The KC4L model involves collaboration between nearly 30 schools and colleges, as well as employers, across a whole local authority. The model has been running for some years and is perceived by e-learning managers to work well. There does not seem to be any problem with respect to how many students can log in at the same time. The selected learning platform is used by 50 local authorities and private sector organisations, and all schools that use it can share resources.

In what ways has the introduction of online learning had an impact on organisational issues?

For students involved in KC4L courses at second institutions, it seems that a key impact has been the need to travel at least one afternoon per week.

For the schools and colleges involved, there has been the need to collaborate regarding the timetabling and administration, and granting access to their learning platforms to students of other institutions. Schools such as Spen Valley adopted the learning platform that was the most common choice of others in the local authority.

Regarding league tables of results, there has been a specific issue about which institution claims a student's results when a student attends more than one institution. An e-learning manager pointed out that the competitive ethos engendered by league tables does not fit well with the collaborative ethos required for an initiative such as KC4L. The e-learning manager considers that schools and teachers are more reluctant to share skills and materials if they know they have to compete with other schools to attract quality students and gain positions in league tables.

Initially, KC4L had an e-learning group to discuss issues such as which learning platform to adopt and how to promote it. The learning group has now been replaced by a content development group, to provide materials for all to use. The content development group has bi-monthly meetings.

The first aim is simply for online learning to be used. The e-learning managers proposed a particular model, which they found works well for getting schools involved in this form of online learning.

At the local authority level, the e-learning managers' position as overseers of the whole system is key, alongside liaison between schools. The e-learning managers said they can access a school's portal to get students logged in, alter passwords or upload material if no one is available in the school to do this. The e-learning managers recommend that there need to be separate individuals responsible for primary as well as Key Stage 3 levels, besides their own role for Key Stage 4 and 14–19. They say that having curriculum consultants for different subjects 'on board' with the scheme helps, as well as being able to persuade technical staff at local authority level to slacken blocks and filters.

KC4L has a common file structure in the background, and the top third of the screen fixed, to give consistency across institutions, while teacher-created content, which may be of variable quality, is in the bottom two-thirds of the screen.

According to the e-learning managers' ideal model, at the school level, planned implementation is required, with the headteacher on board. Those heads who have taken part have often attended Strategic Leadership in ICT (SLICT) courses, which increased their enthusiasm.

The school requires an expert on half timetable, preferably with a deputy who also has some time allocated to operate the system. There needs to be an administrative assistant who has been trained to use the system to a high level and who can upload material for busy teachers. Individual teachers from each department need the equivalent of mornings off occasionally to learn the system and develop content. The initial training provided by KC4L covered experts and administrative assistants, but other teachers need training too. (The authority has provided training both in summer holidays and online, and now offers training with a more personalised focus.)

According to the e-learning managers, the content that is currently available is often not suited to a particular teacher's curriculum, and, without appropriate content, teachers tend to ignore the online elements of the platform; the help of a graphic designer would be valuable. Good technical support is also seen by teachers as key; technical support is generally good at Spen Valley.

The head of Spen Valley stressed an important feature: he had appointed a director of e-learning, whose remit is IT across the curriculum, rather than an ICT leader, whose role is limited to teaching the likes of DiDA. The director of e-learning teaches full time and is supported by a second member of staff in the department. The enthusiasm, commitment and support of the director of e-learning were commented upon as being invaluable for encouraging online learning. It is seen as important to have one person driving the process. The director of e-learning is seen as well supported by the senior leadership team.

The costs involved with online learning are not seen, at a managerial level, to be problematic. The school has a programme for rolling upgrades of hardware, so

meeting the specifications of online learning has not been an extra expense. (The school counts itself as ICT-rich in terms of designated and cross-curricular suites, although a suite may need to be booked four to five weeks in advance because of timetabling restrictions. Not all departments have a designated IT suite.) The costs of training staff have not been significant, especially because younger staff arrive with experience in using online technology, and many older and senior staff have been enthusiastic anyway. Teachers are still not timetabled, though, to have time with the e-learning manager. Nonetheless, the need to train staff and students to see the benefits of online learning has been one of the key challenges.

The headteacher considers that a change of pedagogic style has been necessary, and is sometimes difficult for more traditional teachers. Students coming from a primary school with a cross-curricular, thematic approach enhanced by ICT arrive expecting this approach in secondary school; when they do not find it offered, but instead are told, for example, to “turn to page 23”, they respond with low-level disruption. All classrooms now have interactive whiteboards, and students, as ‘digital natives’, expect more than electronic blackboards and a repository for documents – this new style of learning has to be planned for.

At Spen Valley, the school has replaced traditional homework with ‘extended learning tasks’, with one task set for each subject each term. Tasks are set, handed in and returned online, using KC4L’s learning platform. According to teachers, online use of extended learning tasks has meant they spend more time marking and making comments out of class, and therefore have more time to give attention to individual students in class. Extended learning tasks are perceived to improve students’ time management and life skills. When extended learning tasks were first introduced, students were given 14 tasks to do at once, often with the same deadlines. The number of tasks was found to be excessive, and students tended to leave them until the last moment, so tasks have been reduced to three at once. One teacher reported that it has been important to make computers and the internet more accessible by making suites open at breaks, lunchtimes and after school. The teacher considers that learning must be differentiated: less able students need more structure and less-open tasks.

Students’ time and achievements online are traceable, which enables teachers to monitor and praise progress. The system for monitoring online work is that individual teachers are responsible for ensuring that students complete work in their subjects. Teachers are moving to a system of self-assessment and peer assessment, with work marked in class rather than by the teacher outside teaching hours.

According to the headteacher, the school’s model is a blended one: online learning is a tool, not a replacement for the teacher. The process of change is seen to be one of “evolution, not imposition”. Building Schools for the Future is seen as likely to bring further exciting change, in the way of smaller groups, more online learning, and a shift to teachers doing more mentoring.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

According to the e-learning managers, the online learning facility contributes considerably towards the development within KC4L of the new Diploma system. KC4L is in the process of rolling out a programme of 18 Diplomas.

The headteacher describes one of the major impacts of online learning as greater “student voice”. A good example of student voice is the student discussion forum (emphatically not a chat room, in the headteacher’s eyes). Some topics on the forum were initiated by the headteacher, but students have been sufficiently interested in using the facility to initiate discussions on subjects such as how to improve the new dining area further, whether the school should have a sixth form, and whether there should be a school uniform. What was impressive is that Year 7 students were able to join in and disagree with Year 11 students, with whom they would never normally interact. Students who are normally too shy to speak up in class can contribute articulately. The school moderates discussions on the forum, but allows students to talk and write informally.

One advantage appreciated by students is the instant feedback on performance given by automated marking of online tests. Boys in particular are seen as responding well to this immediacy. The science teacher considers that the online work gives direction and focus to students who are keen; students come into school motivated by their own success.

Online activities are perceived by staff to make their teaching more engaging and to make dull subjects more interesting. A PE teacher finds that having a common learning platform across departments enables cross-curricular links between, say, PE, mathematics and science. For example, they are using a computer program in PE to record sporting movements and compare the angle of students’ joints and limbs against an ideal model – “We’re trying to make that bigger at the moment.”

Once material has been uploaded to the learning platform, a teacher can easily edit it. For example, the religious studies teacher talked of a lesson on evil and suffering. The presentation involved pictures of faces and the question ‘is this man evil?’ Students mentioned Joseph Fritzl (the Austrian who imprisoned and abused his own children), and the teacher updated the pictures immediately.

Although parents, at study skills evenings, report that they appreciate the capacity to log in and see their children’s work, in practice few of them do that (perhaps 5 per cent). It is not clear to staff whether this is because parents trust their children and the schools, find they can check adequately what their child is doing without going online, or whether they prefer to keep the boundaries between home and school clear, leaving teaching to teachers, and taking care of children’s other needs at home.

We were fortunate to be able to conduct a focus group with four parents of children at the school. All parents came from homes with at least one computer with internet access, and used computers for work to some extent. Three of the parents had some experience of online learning, for example with Learn Direct. Two were primary teachers and one worked in engineering.

On the whole, the parents were positive about online learning. Boys in particular were thought by some parents to benefit. The parents spoke of the benefits of online learning in terms of being able to work in your own time at your own speed. One mother who had recently attained Level 2 literacy through Learn Direct spoke of her own experience, particularly appreciating being able to work when she wanted to.

However, the parents questioned whether schoolchildren have the requisite organisational skills or understanding of short- and long-term consequences to learn as effectively from a completely online, remote approach. “Those that are focused and want to get good grades are brilliant at online learning. Those that are easily distracted I reckon could find something else to do.” “Some students can focus, but others struggle and need someone alongside them.”

One parent recognised that being able to access homework online would be useful in the case of children who missed school through illness.

All parents reported that their children enjoy using computers. One mother reported that her Year 8 son loved using the computer, and remarked particularly on his engagement with the online revision service exercises which had been set by the school. She was impressed by the competitive exercises where “they don’t realise they’re learning, but they’re taking in all this stuff”.

A number of concerns were raised in relation to online learning and the wider use of technology, both in education and in society at large.

The parents interviewed were also greatly involved in their children’s homework, and Spen Valley’s extended learning tasks gave greater opportunity (and possibly need) for parents to get involved. The learning platform and online revision service helped parents get involved, in the parents’ eyes, by increasing the visibility of homework activities compared with traditional exercise books. One mother of a Year 8 boy said homework “is always a team effort”. Extended learning tasks were popular with her because her son was “a perfectionist” and had in the past taken much longer on homework than his teachers had expected. “Homework shouldn’t be set for tomorrow – children have social lives... Extended learning tasks spread it a lot better.”

The father of a Year 7 boy who is autistic spoke of his son’s difficulty with the testing using the online revision service. The father said that his son enjoyed using the revision exercises and had spent sustained periods of time on it, “but put him in a

test, and he can't concentrate on the question because he knows the time is running down". Their solution was to print the exercises, which the boy would complete, and then his father would enter the answers.

According to the headteacher, one of the best indicators of the impact of online learning on attainment is the change in the school's science results. Four years ago, the results in science were lower, at Key Stage 3, than in English or mathematics, but they are now higher. Science is the subject that has introduced most online learning.

The online system enables the school to measure how much time individual students spend online doing tasks within the online revision service. Staff believe there is a positive correlation between the number of hours an individual spends online and his or her attainment in science (although it is impossible to imply a causal relationship).

The leadership challenge is to extend the success seen in science to other subjects by using appropriate online tools and resources. The headteacher perceived, however, that some subjects, such as English, lend themselves less well to online learning than mathematics or science. Staff consider that demotivated boys tend to prefer online work to be made 'easy', for example reduced to bite-size amounts.

What issues are associated with remote online provision of formal learning?

For the institution:

According to e-learning managers, one factor that had an impact on the take-up of online learning is that broadband speed has greatly improved in many schools in recent years.

Initially, the learning platform was provided for primary schools and for online courses in the 14–19 age group at Key Stage 4, but there was no reason why schools could not also use it with Key Stage 3 students. In practice, teachers at Key Stage 3 initially did not use the online facilities much. The e-learning managers found that students from primary school expected online learning, but did not find it, so that by Key Stage 4 they were somewhat de-skilled. The e-learning managers have therefore taken on responsibility for Key Stage 3 also, to encourage the use of online learning at this stage and maximise the possibilities at Key Stage 4. Ultimately, the e-learning managers think it would be preferable for the local authority to appoint someone specifically to be in charge of Key Stage 3 for KC4L as a whole. Key Stage 3 invites the involvement of all core subjects, not just those offered in collegiate 14–19 courses.

According to the e-learning managers, teachers did not initially perceive any particular need for e-learning, and there was little content provided; teachers did not know how to use the system, and did not have the time to do so. Furthermore, a few years ago, far fewer teachers used email, so it was more difficult to communicate

with them: online messages were not part of their culture; not every teacher had a computer; teachers would routinely check their pigeon holes for mail, but not their email inboxes. The managers see this culture as now changing fast. They believe online learning was perceived initially as a new technique for which there was no obvious use – teachers had to find something to do with it. As teachers and schools find one use for it, such as an easier way to manage email, they begin to query whether it might be capable of other useful tasks. Gradually, the e-learning managers think, the technology will become embedded in a new style of pedagogy.

The e-learning managers are still worried about the digital divide, so have not yet adopted fully online courses. Even if students have broadband at home, this does not necessarily secure access.

Technology is now available which will project individual students' screens onto the whiteboard, making it easier for teachers to monitor when students are surreptitiously accessing inappropriate sites.

One issue that did arise for Spen Valley was negative remarks about teachers, posted on a modern foreign languages discussion site that the school used to have, but which was closed down because of these remarks.

E-learning managers pointed out that, although learning platforms are currently used mainly within schools and classrooms, they are intended to be used outside school and outside school hours. In order to encourage more schools and teachers to take up online learning, the e-learning managers consider it valuable to show examples of good practice, but have found that, if these are isolated examples, they tend to be dismissed as exceptions. Similarly, the e-learning managers said it is valuable to have a 'champion' within each school; however, it is often best if these are not ICT teachers, so that online learning is not perceived as just for that subject, when it needs to be adopted across the curriculum.

The e-learning managers said that some teachers are suffering from an overdose of new initiatives and hope that, if ignored, online learning will just go away as many past initiatives have done. Even when initiatives promise something positive, there can be a tendency to not do anything until the initiatives arrive in case work put in now needs to be redone when the next initiative comes in.

Once a new practice is established, more teachers will grapple with it and make the effort necessary to use it. The e-learning managers find, however, that it can be difficult for schools to release teachers for an adequate amount of training, and, because technology is changing so fast, it can be difficult for training to keep up to date. Staff turnover can also make training provision difficult – when teachers who are trained leave, new teachers may lack their skills.

The lack of timetabled time in which to develop and upload content is also a difficulty – even though many teachers have the ideas and skills necessary.

For teachers:

According to the e-learning managers, when devising content for online courses, it is important for teachers to adjust the type of language used to the age and maturity of the students. Understandably, Key Stage 3 students cannot cope with as much complexity as older students. For younger or less able students, e-learning managers believe it is important to restrict the amount of text on a single screen, preferably to a single paragraph or sentence or to just one word on a button which may be clicked interactively. Creating online materials is a new skill compared with devising worksheets.

E-learning managers report a tendency among teachers to compare materials they developed themselves with the best of what they find on the internet, and to think their materials are not good enough to share with others; teachers need to be encouraged to post usable materials for others to use, without thinking materials must have ‘bells and whistles’. Some teachers have a perception, which the managers believe is generally unfounded, that students know more about the internet than they do. Teachers’ lack of confidence in their ICT skills, and a lack of time to upload materials, have, they say, been the main factors restricting Spen Valley from developing more online learning materials. At the moment, materials produced by the school are mainly for use within the school, but the dance department does use materials with students from other schools.

When the new learning platform was introduced, to avoid mistakes, only one person was able to edit materials; this has resulted, the managers say, in a loss of sense of ownership.

The dance teacher spoke of an initial increase in workload followed by a reduction when the learning platform was set up. Some staff think that the hours they put in to develop online courses are not recognised, and that those who do the work go unnoticed.

Teachers are concerned that students tend to focus on presentation more than on content – students spend a lot of time looking for nice fonts for presentations. One teacher stated that students still need to use pens.

For learners:

There are technical problems: it can take 15 minutes to log in, and the system is sometimes slow to respond.

One teacher reported that each time Java is upgraded, it can take ages for the online revision service materials to be adapted to work with it, and students attempting to

use materials at home may not realise they need to upgrade their versions of Java, or know how to do it. Filters used at home may prevent new versions of Java from uploading.

Staff say that students often expect videos or Flash animation, and are disappointed when these are not always available in school.

A teacher stated that young people need variety: too much learning on computers can be boring, especially because learners spend a lot of time on computers at home.

The religious studies teacher asked a class about the school's learning platform, and found a 50–50 split in whether students thought online learning was a good thing.

For parents:

Parents thought that social networking sites and MSN compete with online homework for their children's attention. One mother reported that her Year 8 daughter favoured studying with books in her bedroom because she found using the computer at home, including the temptation of MSN, distracting. The mother also thought it was a challenge for online learning to sustain children's focus. She described her daughter as being disciplined and organised in relation to school work, and had no doubts that a student with her qualities would profit from online learning, but thought that many other children, including her son in Year 10, may need more pushing to stay on track.

A father was concerned about the amount of time his 15-year-old son spent gaming:

“He's home at 10 to four. At 4 o'clock he's halfway through Medal of Honour. At half five we have to kick him off for his tea. If no one phones him up or he's got no homework, he's gaming until something comes on TV.”

Parents tried to set limits on their children's use of computers at home. One mother said she encouraged her child to do homework after school “cos if he goes out first, he won't want to come back in and do his homework”.

The father of the autistic boy bought him a laptop for Christmas, and both parents were very keen to promote ICT; the school's development of online learning was to be welcomed because it fitted with the inclusion aspects of their son's statement. The parents' concern, however, was that increasing use of ICT could jeopardise their son's social interaction: “anything that pushes him further down his insular autistic pipe... is an extreme fear”. This father, as an employer, was also concerned that a workforce should not have ICT expertise at the expense of social skills. The father thought that collaborative group work together with ‘chalk and talk’ teaching must not be neglected, and that the bulk of schooling needed to happen in a traditional environment. A primary school teacher who had studied an online Learn Direct

course agreed that technology could have an isolating effect, and contrasted online learning with her workplace, where a premium was placed on speaking and listening.

The impact of the use of ICT and online technologies, particularly on boys, extended to boys' writing and reading. We found evidence that writing on the computer can be more motivating than writing with a pen. One mother said her son much preferred typing to using a pen: "it's quicker for him". Another said her son found it difficult to focus simultaneously on content and spelling when writing, and much preferred the support of the spell checker. The mother reported that her daughter engaged more with writing but was "more disciplined" than her son. Some parents were closely involved in their children's literacy and especially thought they needed to push literacy for boys. One father observed that alternative online media may eventually replace the engagement with written language, even when books are the media of choice initially. His son was interested in entering the armed forces and has done a lot of research about it, starting by reading books. But, after starting to research online by reading pages, he swiftly found watching video resources preferable.

There was a concern among parents that genuine engagement with knowledge and creativity is at stake in the "cut and paste generation". One father thought that the creativity that comes out of collaborative learning is endangered by online learning. He thought online learning must not replace traditional methods if written skills are to be preserved: "ICT should be a tool, not the tool." This father also cautioned that the immediate access to information on a topic, provided by the internet, encouraged superficial engagement with topics. In the father's experience, his children did not go beyond the first reference they found when they used a search engine, usually being content with the reference provided by Wikipedia. The father was keen for his son to develop research skills such as the ability to fine-tune his searching.

Does engaging with informal online learning have an impact on the learner's willingness to engage in formal learning either at the same time or later in life?

We found a number of examples of informal learning online, but little clear evidence of how this might have an impact on formal learning: the Year 8 student interviewed said her preference would be to have a blend of some face-to-face teaching and the majority online.

Parents reported that their children use computers to undertake a range of activities at home which relate less directly to school learning. One parent spoke of her son's interest in music: the son learnt guitar formally in school, but at home used a website and learnt to play songs from internet resources such as guitar tablature sites and videos; he also transferred songs from his computer to his phone. One girl was interested in photography and made much use of internet resources. One father said his son used a website at home to support his GCSE music work at a neighbouring school.

Monkseaton Community High School

Monkseaton Community High School in Whitley Bay, Tyneside, caters for students aged 13–19. Monkseaton is a former secondary modern in an area that has a number of other schools, including a successful grammar school.

The headteacher acknowledged that the local area traditionally had low aspirations, but this is no longer the case within the school. Monkseaton became England's first trust school in 2007, and is supported by a charity formed with the school by North Tyneside Council, a university professor and two commercial partners.

Monkseaton is interested in innovative approaches to learning that are grounded in research, particularly those based on cognitive neuroscience, such as the school's creation of 'spaced learning'. An open-plan learning area – the Pyramid – with a distinctive pyramidal glass roof is constructed in a former quadrangle in the school grounds. The Pyramid houses the largest collection of computers in the school and doubles as a library and central meeting space in the absence of a school hall.

Rationale for the introduction of online learning

The headteacher described learning through ICT as a means to compensate for the physical constraints of the existing school building. Online learning is also closely related to the school's vision of 20 per cent independent learning. The aim is for students to work independently for a set proportion of the school week on tasks set by their teachers.

The school is committed to a blended approach to learning, with the Open University model as a paradigm. The school's independent learning group was keen to explore a range of provision for independent learning, based on maintaining a blended approach to learning (not necessarily presupposing the use of ICT and working at a computer, online or off line). Monkseaton's approach to online learning is described by the head as a bottom-up model in which individual teachers' experimentation is welcomed, without over-imposition from management, and, while learning using technology is encouraged, there is no expectation that it is necessarily desirable in all curriculum areas. The head sees online learning as a "methodology, like books", sitting theoretically within blended open and distance learning.

Model of online learning

The school uses a commercial learning platform, which in principle enables students and staff to access learning content both onsite and remotely. In light of the school's approach to the use of online learning there is considerable variation in the degree to which different subjects have used the learning platform; in the mathematics department, for example, the entire scheme of work, together with resources and guidance material, is on the learning platform so that learners can access it at any

time. English, by contrast, had only a modest selection of resources uploaded at the time of this study.

Staff views on the learning platform were mixed. One teacher told us that “it’s a good system, and everything is on there, but our system is a bit disorganised”. The effect of this was that “you never know where to find anything”.

Three particular courses deserve detailed description since they involve a relatively high online content. These are:

- BTEC Sports
- Key Stage 3 and 4 ICT
- Young Applicants in Schools and Colleges Scheme (YASS).

BTEC sports:

Monkseaton school operates two BTEC sports courses: the BTEC National in Sports and Exercise Science and the BTEC First in Sports Development and Coaching. These courses are geared towards students on three Sports Academy programmes: boys’ football, girls’ football, and rugby. Students are generally of a lower academic profile than the Sports Academy students who study three or more A-levels.

As part of an American training model, the school day is split between academic work in the morning and physical sports training in the afternoon (both general fitness and sport-specific training), with the sports training conditional on the completion of academic work.

The programme seems to be very successful, especially given the type of students: 100 per cent of the school’s students passed in 2007. The success rate is higher than for other subjects in the school. Seven out of about 100 students won sports scholarships in the USA in 2007.

The school selected the BTEC course to be developed online because the work is split into manageable modules, each assessed through assignments, much like the university model. In previous years, the course was paper-based, but now all course materials and assignments are handled online through the learning platform. According to the course teacher, the move to online delivery was driven by the need for an alternative to the vast amounts of paper-based material associated with the course.

The course is delivered in timetabled lessons on site in the Pyramid with a teacher. Learning activities are mainly conducted offline – students move physically to the central table in the Pyramid – with 10 per cent online for group work.

Teacher–student communication is estimated to be 60 per cent online, largely in relation to assessment activities.

Currently there is no student–student communication, but the teacher wants to move to requiring students to get work assessed by a peer before submitting it.

The assignment-based nature of the course, together with its popularity, contributed to “massive amounts of paper”. At one time, the students would print off their work and physically hand it in to the teacher, who would then write comments on the work, hand it back, and await its resubmission. Feedback for assignments is now delivered to students through the server. Handling assignments electronically was perceived to reduce the likelihood of students losing work. We were also told that students dislike carrying work around with them: “I’m in a school where a schoolbag isn’t in fashion.”

The assessment of coursework, for which there is a flexible deadline, is found to be better than a single three-hour exam at the end for the sort of student attracted to this course. Many students who would not previously have attained a single A-level pass now gain qualifications deemed by the QCA to be equivalent to two A-levels. The fact that these students gain qualifications meets the Government’s aims, but the fact that coursework may be resubmitted until the pass is gained means, in the teacher’s opinion, that the qualification is “watered down” (in comparison with A-levels).

Records must be kept for up to seven years, so online delivery obviates the need for physical storage space. Having records online also enables teachers to check quickly what assignments each student has completed, which is useful, for example, for teachers who need to authorise Educational Maintenance Allowance (EMA) payments, which was time-consuming before the switch to electronic handling of submissions. Students can also see marks, comments, deadlines and what criteria are required to achieve each grade.

Currently, registration is done on paper for PE, since it is often outside and computers do not withstand rain. A request from the teacher for a handheld device had been authorised by the head, so paper-based registration is set to change.

Key Stage 3, Key Stage 4 and sixth form ICT:

While teachers recognise that online hosting of content and activities theoretically permits students to work from home, ICT is exclusively taught in school in the context of timetabled lessons with a teacher: “even your most motivated students, I find, still need you around”. The whole course is electronic and delivered in dedicated computer suites.

At Key Stage 4, students follow the Diploma in Digital Applications (DiDA) suite of qualifications, equivalent to one to four GCSEs. Exam information, tasks and support material are all accessed through Edexcel’s website.

At Key Stage 3, learners use a website created by an ICT teacher that provides learners with task instructions, videos and Camtasia-type tutorials. Students also make use of North Tyneside's portal, which includes a programme of study at Key Stage 3 level used by schools within the local authority.

Lessons generally start with an introductory presentation, demonstration or explanation from the teacher, after which students work individually at computers on the course website. The teacher gives individual support. Because activities take place in the classroom, all teacher–student communication is face to face.

Student–student communication specifically in relation to the course is mainly in connection with peer assessment. At Key Stage 4, DiDA demands that students review each others' work, so the teacher encourages peer-assessment. Students exchange seats in the classroom and work at each other's workstations. Constructive criticisms are logged electronically (approximately 30 per cent of student–student communication is online).

Assessment is perhaps the area that differed most across the key stages. Much formative assessment is carried out informally face to face in the classroom. Summative assessment is handled differently by different teachers. The DiDA course is seen as ahead of the school in its use of peer-assessment. Students make some use of the school's email system to submit work for marking, but often the teacher asks students to print off hard copies and then hand-writes comments. The teacher said that this was a response to the different preferences of the students. Furthermore, the course demands that students annotate their work, for example displaying on a spreadsheet the formulas they have used. To fulfil this requirement, some students hand-write directly onto a printout of their work, while others use a word processor. At Key Stage 4, work is also often printed out, but this is less likely than at Key Stage 3. DiDA requires work to be 'printable'. For example, a group of students currently working on creating a playlist in database software have found to their surprise that their work prints out over multiple pages. The course stipulates that the product should be a single sheet.

The teacher has no paper-based tools to support pedagogy. For parents' evening, the school provides parents with the website address.

Students make a plan for 30–40 hours, go back to the plan every lesson, record their work and put the plan up on the learning platform.

Open University Young Applicants in Schools Scheme (YASS):

The Open University (OU) YASS scheme enables academically gifted or highly motivated students in Years 12 and 13 (sixth form) to study undergraduate modules by supported distance learning alongside their AS-levels and A-levels.

The YASS scheme was developed in partnership with Monkseaton; it started 10 years ago when 10 students studied an Open University (OU) mathematics course. Initially, the system was illegal, but the school persuaded UCAS and the Government to change policy and the law.

Over 40 modules are currently available, with a large portion delivered virtually entirely online. The scheme aims to challenge learners, provide personalised learning, encourage independent learning, develop study skills such as self-organisation, and prepare students for full-time university-level study. Students study in their own time at home or in non-contact hours at school. The scheme boasts an 80–85 per cent pass rate nationally.

Fewer than 10 per cent of the sixth form at Monkseaton are now engaged in YASS (20–25 students out of 250). These students are self-selecting and, although a high academic track record is advised, commitment and motivation are also important – not only students in the top 10 per cent academically are able to follow the programme.

Ten per cent of staff (teaching and non-teaching) also take online OU courses – in some cases, the same courses as students.

Monkseaton's YASS co-ordinator is a former head of sixth form and history teacher, and also the scheme's national schools co-ordinator. Locally, the YASS co-ordinator registers and mentors students on the programme, offering a pastoral role; teaching is provided wholly by the OU. The YASS co-ordinator took a number of courses (eg beginner's Spanish) to familiarise herself with the materials, and said that "In terms of a learning experience, it's second to none."

We consider the scheme very successful, because all the students who participated in the scheme have gone on to university full time.

The school's YASS co-ordinator thought the education system was arguably resistant to the notion of sixth formers following university courses, in spite of a push from central government to increase the breadth of provision in Years 12 and 13.

The YASS co-ordinator raised three issues:

- Funding: a cap on funding exists which amounts to four-and-a-half A-levels per student. With most schools offering four AS-levels as a core, there might be a financial incentive to keep all provision in house.
- University courses do not count towards the points system that determines a school's position in league tables. Schools are naturally reluctant to offer courses that are not recorded on these tables.
- There is a lack of consensus among employers and university admissions in relation to the value of distance learning. How favourably the YASS

programme is looked upon by other higher education institutions and employers may depend to an extent on whether gatekeepers have any personal experience of the OU or distance learning, and whether they recognise the qualities a student may develop as a result of following such a course.

Upon registration, students become students of the OU and are provided with a username and password for the Open University website. Learning content and activities are generally available online via the website, although there is some variation across modules. Even for courses that have course books, the learning resources are duplicated online. Some courses have additional materials (eg the science course provides a DVD), while others are purely online, especially those in the creative arts. Taster materials – which have been used not just in the context of YASS, but have also been recommended to and used by other teachers in the school – are also available on the OpenLearn website.¹

Generally all teacher–student communication is online, but there is also the possibility on some courses (but not all) of telephone contact or face-to-face tutorials, mostly in Newcastle. In the case of language courses, for example, there is provision for live online tutorials. The OU provides specialist software that enables groups of students on the same course to participate synchronously in a one-hour tutorial with live audio. The interface includes a whiteboard and materials, and shows the names of those students attending. A protocol exists to manage turn-taking; for example, a student clicks a hand icon to signify his or her intention to talk.

At Monkseaton, students regularly meet face to face with the school’s YASS co-ordinator. The co-ordinator saw her role more in terms of mentoring (especially supporting time management and planning) rather than providing academic support, because “they’re all studying different things”.

The OU provides facilities for networks of student-to-student support online, as well as online tutors. Within Monkseaton, the students’ home page has links to discussion forums where students can post questions for others to answer. Use of this facility varied at Monkseaton, with some students enjoying receiving responses. Other students who were “more goal-oriented” eschewed such extra facilities because they “just want to complete the course and get the qualification”.

Some courses have electronic assessment. For some courses, submission is done electronically, whereas others stipulate that assignments are printed out and posted. One student in the school had followed both Level 1 and Level 2 courses with online submission, and was rather disconcerted at having to print out and post assignments for a Level 3 course. The model of assessment and validation of qualifications is set by the university rather than the school.

¹ <http://openlearn.open.ac.uk>

Since all tutors are based with the OU, rather than the school, it was not possible to identify the extent to which online tools are available to support pedagogy and administration.

Is there any evidence that these formal online learning models are scalable?

DiDA has been extended into a provision for all students, and will be extended into Year 9 for 2009 at Monkseaton. Because DiDA is a nationally available qualification, the provision has already been scaled.

BTEC Business is to be introduced in Monkseaton from 2009. The headteacher has ambitions to extend the BTEC model to other subjects such as minority sports, dance, music, drama or languages, “but we haven’t started down that road”.

The YASS scheme is a formal online learning model that has been scaled to the whole of the UK. YASS is offered nationally in 300 schools. There are around 3,000 students nationally, and over 10,000 who have gone through one or more of the courses. Monkseaton thinks there would be no internal problems for the school to increase the scale of take-up of the YASS scheme.

In what ways has the introduction of online learning had an impact on organisational issues?

The YASS scheme requires a local co-ordinator, but otherwise staff reported that it has little impact on organisational issues.

The BTEC courses require specific timetabling, with academic work in the mornings and practicals in the afternoons. Some teachers thought they need time with technicians to put resources on the learning platform, whereas other teachers are self-starting. Some teachers thought that, without close liaison between teaching staff and IT technical staff, mistakes and problems were likely to occur. One teacher said that requests for IT staff to upload material had been overlooked or content had “been put up in the wrong way”.

There are 500 PCs in a school with 850 students; the sixth form has permanent access to computers, and many subjects and all tutor groups in Years 9–11 have regular timetabled access to computers each week. Nonetheless, one consequence of having a number of courses run entirely online is that some other subjects have significantly restricted access to computers, in some teachers’ eyes. Courses like DiDA and BTEC Sports, which have all their materials online, can only take place in locations with computer access, and always take priority. As one teacher put it: “We do have a lot of access to computers, but as an English teacher I find it incredibly difficult to book my class into the Pyramid or into a B-block room for computers, because it’s often block-booked for subjects that have to have access all the time.”

A group of staff is to explore how a broad range of opportunities for independent learning can be provided, partly because of a concern that independent learning should not be viewed as synonymous with solitary screen-based learning. A greater focus on independent learning will require radical changes to the school day. The timetabling model that the school is working towards is currently quite radical in including a large proportion of independent learning. The school opens from 8:00am to 5:00pm, but alternative models may mean teaching between 11:00am and 3:00pm, and independent learning both before and after this. If students had access to a computer, they could study wherever and whenever they wanted to.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

Students are perceived by staff to be becoming better at self-management and more inclined to support each other before turning to the teacher for help.

All learners we spoke to appeared to enjoy learning using computers. Staff think that ICT use has a positive effect on learners' motivation.

Some students, staff told us, especially those with good handwriting, prefer to write by hand than type, and some students have social needs that must be met offline; the school accommodates these individuals.

A staff member said that more able students perform better than less able students when learning ICT skills online: "You have to fiddle a bit – you know, try things out – and if they're lower ability, they don't want to experiment."

A Year 10 boy told us he did half an hour's coursework when he got home at the end of the school day. He also did revision using websites that the school had recommended. He thought that learning is easier online "cos you get the answer you want". He claimed to have more interest relative to his peers in computers – "I like going on computers" – and reported having faced few obvious challenges: "it's quite simple". With ambitions to be a pilot, and currently undertaking flying lessons, he had used the internet to research flying as a career, for example finding out what academic grades were required.

It seems that only the YASS scheme truly gave learners the flexibility to study at a time convenient to them, because there are no timetabled lessons. The flexible delivery of OU courses was viewed as a valuable bridge between the cultures of school and university for those learners who want to enter higher education.

The DiDA, YASS and BTEC schemes are all seen as speeding up progress, in that they can be achieved with less teaching input than other courses. DiDA has only 1.5 hours of teaching input a week – approximately half the time that ICT GCSE-equivalent courses have in other schools, according to the headteacher.

We were told anecdotally that the BTEC Sports courses have been very successful in enabling learners with low academic profiles to achieve. Online courses were seen as especially appropriate, should the school leaving age be raised, for students aged up to 19 who would normally lack the organisation skills to deal with paper-based coursework or transfer books and work from home to school and back.

The YASS scheme was thought to be very successful, with all candidates at the school going on to higher education. The ICT teacher was not sure if online delivery contributed directly to improved attainment, but she reported that, as a core subject, ICT had better results than either mathematics or English. GCSE passes at the school have improved from 15 per cent in 2005, before DiDA, to 73 per cent in 2008.

It was suggested by an ICT teaching staff member that students whose use of ICT is supported at home by parents are more comfortable and happier doing work online: “if they’ve got one at home and they use it and their parents are involved in it”. On the other hand, “if they’re working at home, and their parents don’t want anything to do with the computer, then the students tend to be put off by it”. Staff saw learners as obviously disadvantaged if their home environment lacked ICT-related tools and equipment; for example, they told us that students who lacked pen drives “had a more difficult time”. Students claimed it helped to have a computer at home for research work, because lots of relevant sites are blocked when accessed from school.

Parents are able to log in and check on their child’s work, but only one parent from the BTEC course had been found to have done so – and that parent was also a teacher.

The headteacher said the school had a lot of meetings with parents about the OU and BTEC schemes, and that parents were very positive. Some parents are or have been OU students; some are aware of their child’s enthusiasm for sport; some know of the success of the DiDA course.

The policy of small-scale experiments means that the school does not make big mistakes very often – gradual introduction and careful staging are practised.

The course teacher told us that online provision for the BTEC course enabled other teachers to access students’ work, so that when the regular teacher was absent, another teacher could step in and know exactly what work had been completed and what students still had to do. BTEC teachers enjoy teaching their curriculums around practical activity (rather than the other way round), but had to get used to delivering a course provided by an outside body.

What issues are associated with remote online provision of formal learning for the institution, for the teacher, for the learner, for parents and for industry?

Although the question above concerns remote online learning, in this section we also describe some of the issues in relation to onsite online learning and the use of ICT in general.

For the institution:

There seem to be technical issues to do with provision of hardware. The school's approach to technological change is not to impose top-down shifts which would have implications for whether every student has equal access to online learning.

There are as-yet unresolved technical issues relating to interoperability.

It is also clear that there are practical limitations to what can be provided online, for example practical aspects of team sports.

For teachers:

The incorporation of ICT and online learning in the classroom was thought to have implications for the teacher's role. One teacher now saw his function more as a supervisor than a teacher, and missed the teaching and "provoking" of knowledge. On the other hand, he found more personalised teaching more pleasant than "you against 30".

Teachers told us that the spatial configuration of computers and desks had implications for lesson management:

- Teachers said that the physical set-up of computer suites hindered the management of classic tripartite lessons commencing with teacher explanations and introductions; this was thought to be a particular problem because three-stage lessons are seen by the teachers as being required by Ofsted inspections.
- Teachers also said that surveillance was problematic because students' faces were hidden from the teacher's line of sight in some areas; keeping the students on-task was difficult as a consequence.
- The head of ICT was unhappy about the shifts in teacher–student interaction as a result of teaching in a room with students sitting individually at computer screens. This teacher saw herself interacting much less now with students than when she was a mathematics teacher: "talking to the backs their heads mostly... I don't recognise the students' faces as much."

Other issues raised included plagiarism, that games are often just “a click away” and losing work (although the issues for work submitted digitally or in printed form were essentially the same).

For learners:

An ICT teacher told us that a higher level of maturity was demanded of students in ICT lessons compared with other subjects because of the temptations (eg games and emails) leading them off task. At Key Stage 3, students were promised five minutes at the end of the lesson for other usage provided they worked efficiently at the set tasks. At Key Stage 4, on the other hand, teachers said students were expected to be disciplined.

Students welcomed some aspects of the school’s filtering system; for example, one student approved of being denied access to social networking sites because these were seen as potential distractions during school hours. The North Tyneside web-filtering system, however, was sometimes a source of frustration for the students. Students reported finding it difficult to obtain even innocuous images for their research into topics such as drugs and capital punishment. Another student, seeking to show us the school’s website, found a tab for advice on using wikis or blogs (among other advice about online safety), but when she clicked on the tab, received a message that the site was blocked.

Few students reported an interest in customising their home pages on the learning platform.

The BTEC Sports Science teacher suggested that learners had a different affective investment in assignments submitted by email compared to paper-based assignments, and that students’ work was of poorer quality when submitted electronically.

Both staff and students commented that too much work using computers could be boring.

Some evidence from small-scale research within the school indicated that some students may perform worse in screen-based multiple-choice exams relative to those undertaken on paper.

Although students were said to be becoming more web literate, a small number of students on the YASS programme had struggled with the online aspect. For example, one student had an assignment to submit by a midnight deadline, but because of network difficulties at home submitted it at one minute past the hour and consequently failed. The school’s YASS co-ordinator saw this as a lesson in the importance of planning: “it’s best to learn that lesson now before going to university”.

Again, in spite of the prevailing perception that young people are ICT literate, some students on the YASS programme had difficulty with online communication with their tutor. Sending emails or phoning a tutor that students had never met face to face was a significant hurdle for some, because they lacked confidence.

Does engaging with informal online learning have an impact on the learner's willingness to engage in formal learning either at the same time or later in life?

All learners said they would choose a course with online delivery in the future, but were unanimous in expressing a preference for a blended approach. The headteacher expressed enthusiasm, resulting from previous experience, for online learning in blended provision. Similarly, a university apprentice indicated his interest in pursuing a Masters course with the OU as a consequence of his online experiences. The fact that other teachers, including the national co-ordinator for the YASS scheme, had all engaged in online OU courses alongside their own teaching indicates a significant impact of online courses.

Leicester Further Education College

Leicester College, as it is now, was formed in 2000 from the merger of two colleges in the city. The college is one of the largest further education colleges in the UK, with over 27,500 students studying at four main sites in Leicester and over 90 outreach centres.

Students are predominately part-time adult learners, and approximately 80 per cent of the student population are aged over 18. Reflecting the demography of the local population, a significant percentage of students (45 per cent) are from minority ethnic groups, and almost 50 per cent are from disadvantaged backgrounds or live in areas of deprivation. The college also has an increasing number of asylum seekers and refugees, so ESOL courses are much in demand.

Most students study for accreditation. The college offers a wide range of programmes of both further and higher education, leading to qualifications such as National Diplomas, NVQs, National Certificates, National Awards, City and Guilds Qualifications, and many other foundation-level qualifications. The college also offers Foundation Degrees, HND and HNC programmes, which are approved by university partners and accepted by industry. Adults who want to improve their qualifications and job potential can choose from a variety of learning opportunities. The college also offers a range of courses, including construction, engineering, health and beauty, sport and leisure, hospitality, art and design, and print skills. The college obtained the nationally accredited Centre of Vocational Excellence status for its National Print Skills Centre and is unique in teaching footwear design (in the 1940s, 50s and 60s, the college was the Leicester College of Footwear).

Rationale for introduction of online learning

In 2002, a new ILT manager was appointed and discovered that few staff were making effective use of the learning platform, and that the learning platform was generally not meeting the needs of the college. The new manager therefore distributed National Learning Network (NLN) materials on CD-ROM for staff to use. Coincidentally, one IT tutor had found the learning platform inadequate for his needs and was experimenting with an open source learning platform. The college then appointed a new head of libraries and e-strategy who also had experience of the same open source learning platform, and the college decided to adopt it because it “allowed teachers to take control of what they wanted to do”. This manager had responsibility and accountability for ICT and e-learning, and the appointment removed previous barriers to e-learning.

The new learning platform was adopted quite quickly by some teachers who realised that they could make the system work in the way they wanted it to with their students. These early users of the learning platform were in construction, engineering, hair and beauty, and computing; as ever, the learning platform tended

to be adopted if there was an enthusiast in the department. Curriculum quality managers were found to be important in demonstrating enthusiasm for e-learning, so there was a dual approach of “bottom-up enthusiasm coupled with top-down strategic support”. Another impetus came from linking the adoption of the learning platform to the laptops for FE teachers scheme and the requirement for staff to say what they planned to do with the laptop and how it would benefit them and their learners.

Now, in 2008, staff at the college say that all early adopters and some of the late majority are using ICT. There are pockets of excellent practice but inevitably some places where there is still little or no use of e-learning. The late adopters, perhaps surprisingly, include teacher education, although this team has experienced staffing and management issues.

The ILT managers reported that e-learning is in widespread use across the college. Full-time students do Key Skills work online via the learning platform and many take the National Literacy and Numeracy tests online. The adult basic education department uses the learning platform to create and monitor students’ individual learning plans (ILPs) and is exploring the use of wikis. Study support teams use an online mind-mapping tool. In many teams there is good use of NLN materials and Skills for Life study packs, and some use of the Standards Unit materials.

ILT managers reported that the introduction of a support and development team to manage the learning platform was important in the success of the college’s e-learning provision. The support and development department did not exist when the current learning platform was introduced, and in the early days it had an inconsistent structure owing to the lack of central co-ordination. Now virtually all course creation is handled by this team, although a few tutors have been granted course creator status. Tutors do not generally have time to upload their own material, so send it by email to the IT team.

The college has a firm strategy for e-learning, based around embedding targets in courses. The ILT team is working closely with teachers and listening to learners so that e-learning is aligned to teaching and learning.

On the learning platform, lecturers can develop their own course areas. Some courses follow a strict structure for handouts and activities, for example. Other courses may just use discussion forums. The ILT team thinks that the lack of structure is a benefit and suggested that “use is growing by osmosis”. As is normal in the early stages of adopting a learning platform, a lot of the online content is uploaded paper-based materials, but interactive content is starting to be created. Staff are encouraged to involve students and enable them to play a part in creating the content.

Model of online learning

The courses researched were: construction, uniformed public services (UPS) and the Foundation Degree in Educational Studies (WOLF).

In construction and uniformed public services, we saw the learning platform being used to support and enhance the learning experience for students who already attend the college. The learning platform is used in class under supervision by the tutor and is available outside class for independent study.

The Foundation Degree in Educational Studies a joint venture with Leicester University, and students do most of their work online via the college learning platform and the university's learning platform. The use of e-learning for summative assessment is limited. However, increasingly, work that students do on their courses in the form of formative assessment is also summative because it provides evidence of achievement of the learning outcomes; this is particularly true for portfolio-based courses. For example, the reflective journal, which is essentially formative assessment, can be used as part of a student's summative evidence. Handling of assignment submissions, marking and the provision of feedback are facilitated by the assignment module on the learning platform. The online assessment record is useful to both tutors and students because it provides a log of the assignments that students have submitted and those they have passed.

All the students we spoke to attended college on a regular basis, so were in regular face-to-face contact with other students and their tutors. Students said that they didn't need to contact other students online, although they reported daily use of email and text messaging unrelated to their studies.

Construction:

In this construction, e-learning is used on a range of different courses. Staff identified extensive use of DVDs, interactive whiteboards, presentations and the internet. Teachers use presentations in theory lessons, although the amount of use varies from course to course. Some course material is on the learning platform, but staff reported that not all students could or did access the learning platform from home. Some tutors provide work to do at home using web links: "We've got packages that link to our lesson plans and schemes of work. The OCN units are linked to the tracking documents – it's not just about them [students] dropping in to it [the learning platform], it's about us tracking them."

All construction students take the OCN Health and Safety module, with a package of materials delivered through the learning platform; this module is 100 per cent online. The module involves seven training units that students work through in the learning resource centre and a final test. Students sit the test online in the learning resource

centre and, if they are successful, can print out certificates and place them in their portfolios.

Some lessons are completed in the learning resource centre; the frequency varies from once a month to six or seven times a month on some courses.

As yet, use of the learning platform is in its early stages, largely limited to making course information, class presentations and assignments available to students. The curriculum area is introducing a new diploma next year, so the syllabus is changing; because of this staff said they did not want to spend large amounts of time uploading materials and creating activities that may not be used next year. The online content, mainly copies of the presentations, has been uploaded to the learning platform by the tutor, although this is very much an ongoing project. The main advantage cited by the tutor for uploading presentations was that students who miss a theory session can catch up on work. Students who miss a session would receive an email directing them to the relevant materials “although that’s in its infancy”.

In the workshop, presentations are delivered on a large display screen on themes such as health and safety, personal protection equipment, and guidance on the use of photographs to evidence work. In lessons, students initially watch presentations, and then the presentations cycle in the background while students carry out their practical work. The screen is used on average three to four times per week, depending on the group. The tutor also displays a five-minute presentation just before break time. Students are alerted to break time with a cup and saucer image which flies across the screen. Staff said this was a useful tool in managing classes in this noisy environment.

Most communication in this course is face to face in classes and workshops. The tutor commented that he sometimes sends students emails, but this was done by normal email rather than through the email facilities within the learning platform.

The course is assessed by a portfolio, which is a mixture of different types of work that demonstrates achievement of the learning outcomes.

In relation to summative assessment, the tutor posts all assignment briefs on the learning platform, from where students download the assignments. Having assignment briefs on the learning platform helps tutors manage their courses and students; for example, tutors get fewer requests from students for a copy of the assignment and can direct students to the platform. This use of the learning platform is a start in encouraging students to take more responsibility for their learning.

As well as providing a space to store learning materials and files such as information about the course and assignment briefs, learning platforms also provide a range of collaboration and communication tools, including discussion forums, small-group

activities and quizzes, which this curriculum team (recent adopters of the learning platform) may use in future.

Uniformed public service:

The uniformed public service course is a practical course that takes students through the processes of applying and being interviewed for public service jobs such as in the police force or army. The course combines lessons delivered by the teacher in classrooms and screen-based learning in the learning resource centre.

The tutor teaches by giving presentations in class and providing web links for additional materials, video and so on. The tutor then puts all these materials onto the learning platform for students' use. Students who miss lessons through illness or holidays are directed to these so that they can catch up with their classmates.

The course is full time and involves 16 hours of contact time over three days per week for the duration of the academic year. Students are encouraged to log in to the learning platform every day, and the tutor verifies that they are doing so from the usage logs. The tutor sees his role as guiding the students through materials: "We don't leave them on their own to do it – it is directed learning."

All course-related materials – including course information, presentations, handouts and key web links – are available to students through the learning platform. The tutor also uploads photos from course visits and trips so that students can download these and use them in their assignments. Class discussions are recorded using the interactive whiteboard and these are saved and uploaded to the learning platform for later use. The tutor controls the release of materials to the students to help manage students' progress. Materials on the learning platform include exercises, worksheets and assignment briefs. The tutor is a learning platform enthusiast and is experimenting with quizzes and planning to use features such as blogs and wikis. Students create a reflective journal, but this is not currently done on the learning platform.

The tutor communicates with students using email and instant messaging, although he uses alternative applications in preference to the facilities provided by the learning platform. All students have the MSN address of the tutor. He responds to messages, even at weekends, but uses a code phrase to signal when he is offline: "They'll know I'm busy and they leave me alone!"

The tutor holds individual face-to-face tutorials with the students and finds the online assessment record very useful for this. Being able to see the online assessment record at the click of a mouse button enables the tutor to give more specific guidance in relation to assignments: "It makes your tutorials a bit longer, but the value of it is tremendous because they [the students] understand."

Although face-to-face communication is the primary method of communication, some use of learning platform messaging was reported. Students also reported using email; for example, one student said that he communicated with a few other students around three times a week through the learning platform, predominantly to seek help for assignments. Most students have internet access at home, and the interviewees suggested that the ratio of face-to-face to online communication was around 1:1 partly because of the need to communicate on group projects and assignments.

The tutor had just begun to develop online quizzes for formative assessment, but at the time of the case study there was nothing the students could use. The working practice of the tutor we spoke to was very different from that of the other members of his team, who evidently made much less use of the learning platform.

Students initially access their assignment briefs and later upload assignments through the learning platform, and the tutor is alerted automatically via email. A closing date can be set for assignments on the learning platform, but students are given one week extra after the nominal deadline date. The tutor downloads the assignments, and marks and returns them to students with feedback. The results are then stored in the online assessment record. Once the assignment has been assessed, it can be resubmitted and, although students are not told about this in advance, they are given six to eight weeks at the end of the academic year to redo assignments. With three or four assignments for each of six units “it can be a bit hectic at times”; however, the learning platform considerably alleviates the difficulties (at least for the tutor interviewed).

This tutor marked assignments online, and preferred to do it this way. He found it easier to check for plagiarism and, since by his own admission his handwriting “is pretty atrocious”, preferred to type comments using a different colour font in the appropriate place on students’ assignments. However, he said that he had to provide printouts for the other members of his team, and there was resistance to marking on screen. He thought that marking online was faster: “As soon as I get the email I can mark it – you don’t have to wait for 30 assignments to get in.” While students were given four weeks to complete assignments, the tutor managed to mark and return them to students within two weeks, which he thought was “pretty good”. Students also commented that their assignments were returned faster online. Students suggested that their main use of the learning platform overall was for assessment purposes.

In terms of pedagogical and administrative tools, the uniformed public service tutor uses the online assessment record and tools to create resources such as quizzes, as described above. The tutor is also creating an online template to facilitate internal verification of the course. Internal verifiers will go online and double mark assessments, and then record the results. It is also available for managers to review.

WOLF:

The full title of the WOLF project is Pocket PCs to Support Portfolio Development by Work-based Learners in Further Education. WOLF is a collaborative research and development project between Leicester College and the University of Leicester, exploring the use of mobile technology. The participants are teaching assistants in early years settings and are enrolled on a Foundation Degree course in educational studies at the university. The WOLF students who are enrolled at the college form part of the total university cohort.

Students have a face-to-face induction and a weekly class, but much of the course is studied online. Each student has been given a PDA to use on the course. Students can access the learning platform from their PDAs and can synchronise their PDAs with their computers at home. The primary purpose of the PDA is for students to record and reflect on their experiences in their working environments; students capture events by photograph, audio or video, and reflect on this material and use it to identify strategies to improve their practice. Students record snippets that relate to administration or organisation of their working practice, but the majority of the use is related to teaching and learning and the ways in which they can improve practice in this area. The photographs and other footage can be used as evidence in students' portfolios and can also be used in discussion forums. Currently, tutors upload the material to the learning platform for the students, but the plan is for students to upload their own material into their reflective journals.

Staff reported that they have found being involved in the project an interesting and exciting experience. At this stage of the course, students said that they find getting to grips with the PDAs and the college learning platform a motivating experience.

The course materials are on the university's learning platform. The course is structured around Salmon's five-stage model.² However, tutors at the college have found that their students do not fit neatly into the five stages and require a more flexible approach. Further education students bring a very diverse range of backgrounds and life experiences, varying levels of Key Skills and ICT skills, and do not all start at the same stage, so require their learning programme to provide differentiation almost at an individual level.

ILT staff at the college reported becoming disengaged with the rigid structure of the university learning platform, which is seen as "flat and two-dimensional". The feedback from tutors is that the learning platform is "one size fits all" and prohibits adaptations to the basic structure. Students must currently scroll through long lists of resources, and have found it difficult to relate to the materials; this inevitably limits progress and achievement.

Staff developed some activities using the PDA and the college learning platform, and these are being gradually embedded in the course. Although the activities are not an

² Salmon, G. (2002) *E-tivities. The key to active online learning*, Kogan Page, London.

essential part of the course, they form part of the students' portfolios of evidence; the aim is to enhance the paper-based portfolio. Staff at the college have also created a parallel site on the college learning platform by downloading the materials from the university learning platform, but have tried to make it more three-dimensional by removing the long list of resources that students have to scroll through.

On the college learning platform, resources are organised in tables and sections with links into them; this design aims to reduce scrolling, make resources easier to find and make the environment easier for users to work with. As well as learning materials, the site has administrative and organisational information such as the course timetable and course events and notices. Staff reported that students no longer use the university learning platform because they prefer the ease of use of the college learning platform. However, it should be noted that maintaining the site is very time-consuming and is only possible because being part of the WOLF project has given staff at the college some time in which to create and manipulate resources.

The course makes extensive use of discussion forums, and students use the college learning platform journal feature to maintain their reflective diaries.

College tutors have used the time afforded by the project to produce interactive tasks that are generally accepted to increase the variety of learning techniques and are more interesting and approachable for the college-based students. Some examples of interactive tasks include the following:

- An online induction activity: students use a learning platform forum to write about themselves and experiences from their learning; they can choose to upload a photograph. Staff were encouraged to see that some students were willing and able to upload images, even at this early stage of the course. Tutors can reflect on the forum postings from students. Tutors can use these postings to provide differentiated feedback, pick up skills gaps, gauge progress and set appropriate extension tasks.
- A questionnaire: also in the induction, this uses the learning platform feedback module to assess students' use of mobile technologies and check their levels of technical language.
- An online forum: the equality and diversity module was run as a 'Richard and Judy book club' for which students were set some research and given some reading to discuss.
- A bibliography activity: an assessed piece of work for which students review bibliography entries and identify the missing parts. The activity was originally paper-based. In the college learning platform, the activity operates as a quiz, again using the feedback module; students copy the original entries into their answers and highlight the missing parts.

The module evaluation was originally paper based, but the college used the learning platform feedback module to enable students to complete the evaluation online.

Online communication between teachers and students is a major and essential element of the Foundation Degree course. Online tutorials use forums and the learning platform chat module. Tutors set up discussion topics and encourage students to communicate online. Students use the chat module during the induction, so they are prepared for the online tutorials. In addition, students make regular use of the college learning platform to communicate with their tutors and fellow students. Students generally work full time, so electronic communication is important.

Students are involved in activities that are assessed from the start of the course. Students' postings to the online discussion forums enable the tutor to assess their progress; tutors found that the college learning platform enabled them to make judgements about the strengths and weaknesses of students much sooner than was possible before. Other formative assessment comes from the online activities and the students' reflective journals. There are no learning platform quizzes as yet in the course because the tutors think these inhibit the reflective nature of what they are trying to establish in the course.

In terms of pedagogical and administrative tools, the tutors use a range of facilities, as described above.

Is there any evidence that this formal online learning model is scalable?

As the use of e-learning expands in the college, physical spaces with computers for students to use have become a limiting factor. The previous academic year saw the introduction of online testing of Key Skills, but the college lacked space for this and had to re-commission a number of classrooms. The college has a new build for the 2008–09 academic year, which will provide increased access to e-learning. The learning platform can be scaled to cater for any number of courses and users, subject to the necessary online storage space being available. Storage is cheap at present, so should not be a limiting factor.

All students at the college have a login to the learning platform, although they currently need to log in separately to the college network. The college is implementing a single sign-on for the 2008–09 academic year. Staff reported that the network is sometimes slow at times of heavy traffic. Increasing use of e-learning and Web 2.0 technologies may increase pressure on the network.

Within the curriculum areas we studied, developments were led by a small number of enthusiasts. It appeared that embedding of practice within some curriculum areas remains at an early stage.

In what ways has the introduction of online learning had an impact on organisational issues?

The introduction of the learning platform has significantly changed the working practices of some tutors. The lecturers we interviewed in all curriculum areas reported spending many hours searching for and developing material for e-learning. These individuals were highly motivated and dedicated not just to their profession but also to technology.

- The construction tutor said he spent a great deal of time searching for materials on the internet at home in the evenings. The uniformed public service tutor did most of his course development in his own time, mainly at home. “If someone said to me ‘Your job’s nine to five’, I’d say ‘No it isn’t.’”
- The uniformed public service tutor attested to accessing the learning platform every day and often late at night, but because he enjoyed doing it did not see it as work. He concluded that the learning platform had substantially increased his workload but had decreased the paperwork and the amount of time he spent on it; for example, the learning platform enabled him to mark assignments more efficiently.
- Tutors on the WOLF Foundation Degree course develop materials, answer emails, and manage discussion forums and their courses from home. However, they do have time and space to develop and adapt materials as a result of the project funding.

ILT managers and the enthusiastic tutors agreed that the tutors on the learning platform ‘leader board’ all probably worked a lot at home, including accessing the learning platform on a day-to-day basis.

Staff reported a number of benefits, including:

- Some tutors cited a reduction in paperwork, for example through removal of the problem of students losing their assignments.
- Some tutors found the ability to manage assignments online very useful.
- A construction tutor spoke of easier liaison with other subject areas through the learning platform, for example with Key Skills, where mathematical calculations could be related to authentic workplace practices.
- Tutors generally believe that use of technology motivates students and helps them take more responsibility for their learning.
- Some tutors reported that they were able to get through the course syllabus in less time without reducing the quality of their work.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

One construction student said he often logged in to the learning platform from home: “It takes me a while to get used to everything I do when I start a new thing – it takes me a while to remember everything, go on it for a few hours and just try to take everything, or go on it every day for 10 minutes.” The student thought this had a significant impact on his success: “It is useful because I got predicted to not do brilliantly on the test, but only two people got credit – I got predicted not to do anything, so my mum’s gonna get rinsed when I get home!”.

The students who were interviewed saw the benefits of online learning in terms of being able to work at their own pace and revisit class materials. They thought the learning platform helped them to learn because they were able to consolidate their learning.

The online assessment record helps students gain a clear sense of their progress on the course and where they are going, and enables them to get better grades. Students liked being able to submit assignments online, and they commented that assignments came back more quickly.

+On the WOLF project, students who may not have done any studying for some time find the small group in college and the tutors to be a very supportive environment. However, the supportive environment is perhaps more due to the physical environment and face-to-face relationships than to the online elements. One student commented that “The combination of the learning environment in college, activities set and the [open source learning platform] – working alongside these makes me feel motivated to learn.”

What issues are associated with remote online provision of formal learning?

For the institution:

The institution experienced increased pressure on open access areas that have PCs with internet access. It is essential that students without access to the internet at home have access to computers outside contact hours in order that they are not disadvantaged. However, competition for computers among students who want to access the internet for their own purposes was perceived to unfairly constrain the use of those with genuine research purposes.

It was recognised that introducing e-learning needs to be supported by increasing provision of computers; ‘mobile classrooms’ are therefore being introduced. The new building will have one laptop trolley (20 laptops) per five classrooms. In the campus we visited, each of the lower two floors was already furnished with a ‘laptop cage’, while the third floor was awaiting one. A further pressure came from the widespread

introduction of online testing, which had necessitated the conversion of a number of classrooms into online testing rooms.

ILT managers are aware of the need to align e-learning in the college with the students' expectations derived from their informal use of ICT: "Using a blog on [the learning platform] is not the same as blogging on [a social networking site] – they want to do it in [a social networking site] and we need to manoeuvre to fit in with what students expect."

For teachers:

Teachers reported an increased workload relating to searching for materials on the internet and uploading material to the learning platform. Putting material on the learning platform is time-consuming, and there is an ongoing need for maintenance of the materials. The college therefore set up a small support team which does most of the uploading for staff.

For learners:

If staff use new methods and techniques, this inevitably has an impact on students.

- Not all students have easy access to computer equipment and the internet; some students share a computer with other members of their family.
- On the degree course in the WOLF project, not all students had the level of ICT skills required to make effective use of the learning platform and PDA. A lack of ICT skills was less of an issue on other courses, which could be due to less extensive use of learning platform features on other courses, or perhaps because students were generally younger.
- Students engaged in the WOLF project reported some problems with the PDAs; they noted poor quality on some recordings and had some technical problems getting the devices to work and synchronise correctly.

Does engaging with informal online learning have an impact on the learner's willingness to engage in formal learning either at the same time or later in life?

We do not have a great deal of evidence to report here. Although students made use of the benefits offered by the learning platform and appreciated the flexibility it gave them, they were non-committal about whether they would enrol on another online course. Some students used computers only for their college work. WOLF students are generally new to technology in this form (PDAs), but some students commented that the support from the course team is better than they experienced in previous courses, for example with the Open University.

The Sheffield College

The Sheffield College is a further education college on three main sites in Sheffield, with a number of smaller centres. This case study focuses on the Learning to Teach Online (LeTTOL) course that has been running at the college since 1996.

LeTTOL is run fully online. The LeTTOL course aims to teach lecturers, teachers and trainers how to teach online. After completing the course, students are able to plan to teach online, encourage students to work together and understand the pros and cons of the online and traditional teaching media. LeTTOL is a Level 3 course consisting of four units run in sequence.

The course has now (in 2008) been running for 12 years, and during that time the course leader estimates that approximately 2,500 students have graduated from the course. The course leader explained that student numbers increased until 2001, decreased, and then remained relatively constant. The course is now offered four times a year, usually with at least one intake running with two groups. Class sizes vary but are generally in the region of 15–30 students, averaging around 20. Six tutors teach on the course, but more (estimates vary from 6–20) have taught on the course in the past.

LeTTOL has achieved relatively high levels of success (particularly for online courses). One of the tutors said that, based on his experience of many years' teaching on the course, the expected success rate is approximately 18 out of 20 students (90 per cent).

The technology used to deliver the course has changed, and changes to the course design and activities have been incremental over the period. The course team emphasises that change has been a gradual evolution and sharing of good practice.

Students never normally attend the college. Because it was therefore difficult to meet and interview students face to face, a variety of alternative data-gathering methods were used:

- Face-to-face interviews were conducted with the course leader and two course tutors.
- Telephone interviews were carried out with three students and two employers.
- A questionnaire was sent to a further eight students who had agreed to take part in the research. (Only one response was received.)

Rationale for introduction of online learning

The LeTTOL course is about teaching online, therefore one of the key aims is to give learners practical experience of learning and teaching online. Students learn to be online tutors by:

- reading the content
- completing the activities that allow them to reflect on the content, provide evidence that they have understood it and develop their skills
- seeing best practice of how a really good online tutor operates.

One course tutor explained that “We’ve always tried to have a fairly low minimum computer spec for LeTTOL; this is not about whizz factors, not about technology; this is about using the internet, it’s about pedagogy, it’s about making things happen.”

Model of online learning

LeTTOL is provided entirely online. For each intake of the course, separate courses are set up in the learning environment and individual tutors are able, to some extent, to customise what they do. Some items are standard, and then individual tutors can add different components to tailor the course to their own online teaching styles. A course tutor described the strengths of the model as “that it’s about the relationship between the tutor and the learner, and I think if we were saying to all the tutors ‘you’ve got to do it like this, you’ve got to do it like that’ it would become a factory, and I don’t think we want that. The students like that there is some personalisation for the tutor as well as for them.”

All content is provided online. Course tutors recommend books if requested, but essentially everything is provided online and nothing offline. Standard items, for example core content, frequently asked questions and a glossary, are provided for each unit, which individual tutors can then supplement. Content is provided as word-processed documents and web links. External web links are a key feature of the course, and students are encouraged to contribute their own additional links: it is now a course requirement to add six web links. Owing to the fast-moving nature of the field, content is updated on an ongoing basis, so use of links saves times and allows the course to be kept current. Weblinks – a searchable database that provides students, staff and users of The Sheffield College’s site with validated links to relevant websites – was commissioned by the course team in 1998 to meet a specific need that was not then met elsewhere. Weblinks was the winner of the year 2000 Becta/Guardian School/College Website Award in the post-16 resources for teachers category and was shortlisted in the curriculum category for the 1999 Becta UK School and College Web Site Awards.

The course team is considering the use of audio, video and podcasting for content delivery, but team members are concerned about accessibility because many learners do not yet have access to broadband. The ethos is to make the course as open as possible and not to require a high specification computer or hardware for a student to participate; many students undertake the course at work where they have only limited computer access and may not have the rights to change settings or applications on the machine.

The content, in terms of resources and web links, is interspersed with activities: an activity follows each section of content, enabling students to apply what they have learnt and consolidate their skills. Activities take place entirely online. The course team describes the main activities as discussions in an online forum and web research. Students are also expected to design and plan their own online courses and run their own online activities with the group. Half of the activities are collaborative, so students are expected to work in learning sets throughout the four units; this is a key aspect of the course.

Guest lecturers provide additional activities during the course; these activities allow contact with experts in the field, who may have different perspectives and provide a different context for learning.

Bridging activities, which focus on reflecting on previous activities and planning for the following unit, take place between units. The course team thinks this is a crucial way of integrating what the students have learnt in each unit with the other units on the course, and of helping students manage their time.

Teacher–student communication again takes place entirely online through the use of email, asynchronous discussion boards and online chat. Occasional telephone contact takes place when problems exist, but this is not the norm. Most teacher–student communication takes place in asynchronous discussion forums. Social, technical and learner support forums are provided for each tutor, and other forums are added by the individual tutor. Some tutors may also use other communication technologies such as internet telephony or instant messaging, usually initiated by the students. However, these technologies are not a standard part of the course because they require the installation of third-party software that may lead to technical or accessibility issues. The use of synchronous telephony and voice messaging systems for the course as a whole is being considered.

Again, student–student communication is entirely online, and again predominantly through discussion forums, but also using email and online chat. Learners are allocated to learning sets; while tutors structure learners' discussions in the forum on the open source learning platform, the content of discussions is very much contributed by the participants.

Collaboration is an integral part of the course, so students are expected to use a range of technologies and understand their potential for learning. For example, one activity asks students, as pairs or in a small group, to organise a chat session. Some activities are concerned with the collaborative creation of content which is then shared with other tutors for use with their students. For example, one tutor described how a cutting-edge guest lecturer conducted web research to identify online tools that could be used for learning. The output was a table of evaluated resources, which was then made available for all teaching staff.

One student said that he “found the discussion forums most useful, as they allow you to learn from other students and discuss issues in some depth”. However, he also added that “I found the online communication effective, although there is some frustration waiting for other peers to respond, particularly if the task involves everyone making contributions and one or two peers are slow to respond.” In the case of another student, the LeTTOL course was his first experience of online learning, and he thought that the most marked difference to other learning he had experienced was in terms of the “community learning/constructivist approach”. The learner-centred design was wholly different to anything the student had done before: “[before LeTTOL] I’ve always been fed information”.

Formative assessment is entirely online. Regular formative assessment activities take place throughout the course and are integrated in a reflective portfolio. Detailed feedback is given on each activity, either as a reply by email, through the open source virtual learning environment or by integrating comments into a word-processed document.

A mandatory pre-course assessment consists of an online enrolment form. The bulk of this form is a standard application form, but one section concentrates on assessing the potential student’s suitability for the course, why he or she thinks it is the right course, and why he or she wants to undertake it. The pre-course assessment also checks the student’s ability in English and his or her willingness to collaborate, time-management skills and IT experience.

All summative assessment is online. Summative assessment takes the form of a portfolio of all the formative activities and reflection; in effect, the portfolio is just a way of amalgamating the learning that has taken place throughout the course and presenting evidence that the learning outcomes have been achieved. An electronic portfolio is provided in a word-processed document which explicitly links the activities to the assessment criteria; students then cut and paste the activities that have been undertaken during the course to provide evidence that the learning outcomes have been met. The portfolio is graded on a pass or fail basis, and plagiarism is combated through a robust system of spot checks.

Pedagogic support tools are provided to tutors, again entirely online:

- A tutors’ web board has been available since the course started and provides a forum for tutors to ask questions and share ideas. The web board also provides an archive of previously asked questions. Additional tutor support takes place online via email.
- Tutors are also provided with a tutor expectation grid which details every activity that students undertake, with a description of what each activity involves and what the student is expected to do to meet the assessment criteria.

A number of administrative tools are available, entirely online:

- A tutor guide provides detailed administrative information, including checklists of what to do at what point during the course, guidelines and technical information on how to organise files and chat sessions and set up web links, and a range of sample emails. (A detailed study guide is provided electronically to students at the start of the course, and contains a timetable of activities and submission deadlines. Tutors have a limited amount of flexibility in terms of how they want to manage their groups, and have the scope to make small changes to the study guide.)
- A tracking document in the form of a spreadsheet is also made available to all tutors, and contains timetabling information, details for monitoring progress and attendance, photographs of students, details and wording of activities, and information about what the tutor should expect learners to do. The tracking document supports the tutor in managing the learners' time and can be further customised by individual tutors. The spreadsheet is also used for group record keeping and is sent in to a central point once a month.

Is there any evidence that this formal online learning model is scalable?

The Sheffield College model appears to be very scalable because an increased number of learners simply requires another tutor to be recruited. Tutors are required to have completed the LeTTOL course themselves. When additional tutors are required, they are therefore recruited from the pool of ex-students. There is no formal mentoring for new tutors, although there is a great deal of virtual collaboration via email and the tutor web board.

The course leader felt very strongly that this type of course is more expensive to develop than traditional teaching, but is much more scalable once it has been developed.

In what ways has the introduction of online learning had an impact on organisational issues?

Both of the tutors interviewed described an increase in teleworking, saying that many tutors now work entirely from home, and some hot desk. The tutors thought that teaching on LeTTOL provides flexibility for teachers as well as students, and that The Sheffield College is very forward-thinking in the way it manages and pays for staff contact time online: the college allows teachers to work flexibly and not spend time accounting for time; this approach has been critical in embedding a successful model for online teaching within the college. The formula for managing contact time gives the same number of hours as face-to-face teaching; online tutors are therefore paid the same rate as face-to-face teachers.

The technology used to support the course has changed over the years, but the underlying structure and pedagogy has not. The course has been updated a little over time – it is mainly the activities that change. The course leader and tutors think that LeTTOL has successfully evolved because tutors are encouraged to try new things and share good practice, and because, aside from the technological changes around the learning platform, large-scale change has not been implemented in a model that has been proven to work.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

Staff see flexibility as a key benefit: online learning enables people to work at time and in a place that suits them. Online learning is also more efficient because it removes the travelling time to and from work. Staff appreciate the opportunity to teach online.

One employer said: “In a lot of cases, these people couldn’t do the course at all on day release.” And a LeTTOL student said: “Online learning provides the flexibility in terms of time and location that means I can fit studies better around my other commitments. There is no travelling or other wasted time involved, and I feel that the time I do spend on my studies is profitably used. This acts as a motivator for learning.”

One student highlighted that a key advantage of the online approach is “you’re more responsible for your learning”. Learners have a “sense of ownership in the content that you learn – you value it more”.

Proactive tutoring and student time management are seen by the course leader as the key to progression. Treating learners as individuals and getting to know them is crucial, and it is important to be seen as available and professional when providing support.

One employer considered there to be several other advantages of the online programme. She thought that online learning gives the opportunity for immediate feedback on learners’ activities, which is crucial because constructive feedback can signpost areas for further development and can be motivating. Learners take responsibility for their learning and develop the ability to pace themselves in order to achieve targets within a specific time, and they develop skills in relation to Web 2.0 technology.

The course team also highlighted advantages to be gained from online learning in relation to equality, diversity and accessibility. Given that there are increasing numbers of learners in UK education from overseas, there is potential to adapt the technology to help these learners; for example, ready access to digital translation services can create “a more level playing field”. Similarly, technology can help

learners with visual impairments. Online learning also allows learners who are located outside the UK – including, in the case of one employer interviewed, a number of expatriate British who are not near an English-speaking academic institution – to study a course.

In terms of the learning design, and in particular the collaborative course content, one student mentioned the scenario-based problem-solving as particularly useful and enjoyable. Students are invited to work in learning sets to propose ways of dealing with, for example, plagiarism, racist postings and reluctant participation. The student thought this activity was very useful because the problems are real possibilities.

One student reported that LeTTOL challenged his notions about how an online course can be organised and delivered. The student now wants to produce an online physics course that is quite different to what he envisaged prior to LeTTOL, particularly in that he now intends to integrate student–student communication into the course: “it has heavily influenced the way I would do an online course”. The course has also had an impact on the student’s classroom teaching, particularly his new enthusiasm for the constructivist approach. The student now favours posing challenging questions for groups of students to discuss and propose solutions; he argued that, while being more time-consuming than ‘spoon-feeding’ students, this approach would ultimately enable richer learning and be more enjoyable.

One employer thought there are clear indications that online learning will be a significant part of training in the future and that it therefore makes sense to recruit employees (as teachers) who already feel confident with technology and are able to support their own students in the use of technology.

What issues are associated with remote online provision of formal learning?

For learners:

The course team described a broad generation gap in terms of ICT skills. Even though learners are often experienced academics in their 40s and 50s who use computers on daily basis, their ICT skills may be at a fairly basic level. For example, learners are competent with email but may never have used chat rooms and discussion groups. One learner said that using technology in a different way “can come as a bit of a shock”.

However, one interviewee thought that learners often assume they must be “computer whizz kids” and may avoid courses with online delivery because they think they are not up to it, while in reality they do not need advanced ICT skills – learners tend to anticipate more difficulty than the technology actually presents.

Another interviewee thought it is important to ensure that learners have the prerequisite skills to use the technology: basic navigational skills, the ability to use

the keyboard and mouse, get onto the internet, and save and upload files. Learners may therefore need to undertake a basic introductory ICT course.

An employer highlighted that access to technology by learners is an issue. However, learners need to know how and where they can access the technology; for example, they do not have to learn at home, but can make use of the local public library.

Both learners and tutors highlighted that issues continue to exist with students' time management, particularly with the workload and other pressures; however, there are usually challenges with fitting part-time study – in whatever mode – into a busy lifestyle. The LeTTOL model requires 'little and often' participation, which does not always fit with the way in which people manage their time and live their lives.

Another issued highlighted by several students was the fear of establishing social relationships in an online environment. One learner said that working online is "somewhat isolating, as [you are] working on your own all the time, but I find I put a lot more effort into learning online. Because you don't have a tutor in the same room with you to ask straight away, I do tend to work at problems or try and find help independently before I ask the tutor for help."

Another student thought that the course offered a high degree of personalisation, saying "it feels like you are working with the tutor". He did not think that building up a relationship with the tutor was hindered by the absence of face-to-face communication. Even though the tutor's responses were not immediate, the online contact allowed the learner to feel supported over a sustained period, which was in contrast to a classroom-based course: "If you say you're struggling with something, you get the support [on LeTTOL] – it's not like only having one hour a week to see the tutor."

Yet another student was very enthusiastic about the social engagement and appreciated the opportunity to interact with students from different parts of the country and indeed the world, saying "you can't get that with a classroom course".

One student thought that self-motivation and self-discipline are vital, and that some learners in his set "let things drift on" – that is, got behind with their work. He acknowledged that the obligation to share knowledge with the rest of the learning set imposed an additional responsibility, and that if you did not do the work, you would let down both yourself and others.

Different tutors have different approaches to aspects of the course (eg time management), and this model facilitates individual differences in teaching style. One student said his written English is not good because he has dyslexia. The student reported that in a traditional learning environment, he was usually able to avoid or minimise written work because verbal discussion was a viable alternative. However, on LeTTOL, he could not avoid other people reading his written work, which forced

him to confront his difficulty and proofread his work. The student said: “The spell check is wonderful – I don’t think I would have been able to do it without the spell check.”

A challenge highlighted by students was the difficulty of thinking of new contributions to post in the discussion forum. One student had five people in his learning set, with a single person responsible for starting off the discussion and summarising its content at the end. He found that the ‘keenies’ (as he termed them) would very quickly contribute all there was to say about a topic. He found it difficult if he did not get in quickly to add new contributions because “some people hog the forum”. The student was concerned that often he looked as if he was just repeating what others had said, although others’ contributions encouraged him to consult the provided references and read around the topic in order to formulate an original contribution; he was forced to “hunt around for some new stuff”.

For the institution and teachers:

Tutors explained that problems exist with bandwidth and machine specifications, so the course is able to make limited use of emerging technologies. If students need to download software (eg internet telephony) to their machines, there are issues of support and liability with the third party software.

For the employer:

One employer thought that access to technology was the biggest challenge, particularly having the right equipment and a fast internet connection. Network problems at certain times made it difficult to get onto the system.

Does engaging with informal online learning have an impact on the learner’s willingness to engage in formal learning either at the same time or later in life?

In general, students said they would be willing to engage in formal online learning in the future, but that this would depend very much on the subject.

One student commented that online delivery is not necessarily appropriate for all types of content. However, in relation to online learning, this student thought that “you have to be in the mindset before you can consider being an online tutor”, and “you’ve got to be aware of the pitfalls”. For this reason, the student thought the experience of being an online student afforded by LeTTOL was valuable. This student also thought that, with online learning, students are either very excited and motivated by a course, or very swiftly drop out.

St Helens Further Education College

St Helens College is one of the largest further education colleges in the UK, with 16,000 students studying at three main sites in the St Helens area.

St Helens College offers a wide range of programmes leading to qualifications such as National Diplomas, NVQs, National Certificates, National Awards, City and Guilds Qualifications, and many other foundation-level qualifications. The college also offers honours and foundation degrees and HND and HNC programmes that are approved by university partners and accepted by industry. The college provides many pathways for students to start their studies and progress to higher levels with the help of effective tutorial support and a good range of resources. The college has obtained the nationally accredited Centre of Vocational Excellence status and works closely with local businesses to provide training for staff.

Students are predominately adult learners. Students in the 16–19 age group represent approximately 25 per cent of the total student population; most are studying for accreditation. The college also provides a variety of learning opportunities for adults who want to improve their qualifications and job potential.

Students have good access to ICT resources through well-equipped ICT centres and the college libraries. Students have individual logins to the college network which also gives them access to the learning platform.

Rationale for introduction of online learning

The push for ILT gained impetus in the late 1990s, and St Helens College was one of the early players in the field. ILT managers said that the college adopted a strategic approach to the use of ICT, making use of the Centre for Excellence in Leadership training programme for managers, which was then cascaded to the college management. The college established a centre for ICT developments in 1999 and created a bespoke virtual campus to facilitate the online delivery of interactive learning materials developed in house. Some materials were made available for purchase by other organisations.

In 2000, the National Learning Network was established to promote e-learning in the further education sector. Also in 2000, funding was made available for colleges to purchase learning platforms, which were relatively new at the time; St Helens College was one of the early adopters. The learning platform is now well established and there has been a high level of buy-in from staff. The college decided to move to an open source learning platform, and this is being phased in.

St Helens College has contributed to many national and local e-learning developments over the past six or seven years and has a high profile nationally. The Centre for ICT Developments now employs an e-learning manager and two full-time e-learning lecturers. A large amount of e-learning staff development takes place,

including a college-developed online e-tutors course, which can be studied totally online but is also supported in house by some face-to-face sessions. The e-tutors course enables staff to gain accreditation from NCFE.

The rationale for the use of e-learning was primarily to enhance the students' experience and provide development for staff to enable them to support students. However, the sector has experienced considerable pressure over the last decade to demonstrate effective use of the funding made available by Government. Colleges were required to produce e-learning strategies and demonstrate continuous improvement in the range and reach of their e-learning activities. The measures of impact were the key indicators of retention, achievement and success, but it has proved impossible to separate the effects of e-learning on these indicators from the effects of other initiatives and developments in the sector. However, Ofsted reports demonstrate upward trends in achievement and success levels.

Model of online learning

The courses researched were: NVQ Hairdressing Level 2, BTEC Diploma Music Technology, ITQ Level 1 and 2, and Animal Management Diploma and NVQ.

The model we saw on all courses was of a learning platform being used to support and enhance the learning experience for students who attend the college, but in most cases not for supporting remote learning. The learning platform is used in class under supervision by the tutor, and is available outside class for independent study.

On some courses, some full-time students require support with their literacy and numeracy, so they study literacy and numeracy courses via LearnDirect. These LearnDirect courses deliver the learning materials via a website, but learners are again supported by tutors in the college learning spaces.

Students on all the above courses have access to a range of online materials to support their learning. Each course has an area on the learning platform. The college e-learning team has allowed curriculum areas to set up their own learning platform course structures, but has provided guidance where necessary. On many courses, materials are largely static resources, often electronic copies of paper documents.

In terms of communication between students, those with whom we spoke all attend college on a regular basis, so are in regular face-to-face contact with other students and their tutors. The face-to-face contact appears to reduce the frequency of online contact related to the course. Where students used the email facilities within the learning platform, this was to facilitate group project work by communicating with other students in their group and also sharing their work.

The learning platform facilitates the frequency and scope of formative assessment but is not used on all courses. The learning platform enables tutors to create tests that are self-marking and provide feedback to the learners. The use of e-learning for

summative assessment is more limited. For NVQ courses, formative assessment is also summative because it provides evidence of achievement of the learning objectives.

A learning platform contains a range of pedagogic tools which are used to different degrees on different courses. Features include: a space to store learning materials and files; the ability to create self-marking tests and quizzes plus the facility to store the results of these in a grade book; a range of collaboration and communication tools with which tutors can set up small groups for specific tasks or activities; digital exchange of assignments via the digital drop box, with the ability to provide feedback to learners and store results in the grade book; and a virtual interactive whiteboard where diagrams and other resources can be shared.

A number of administrative tools are also available to tutors. Tools provide the following: the ability to view logs that track what students are doing in the learning environment, and when and for how long they do it; a notice board which enables tutors to communicate key messages to students; a personal space in which to store work, perhaps to support an e-portfolio; and a personal profile.

NVQ Hairdressing:

The hairdressing team has all its theory materials (presentations, handouts, and materials from FENC, FERL, and the NLN, for example) on the learning platform. Students can use these materials for revision and consolidation and to support them if they miss a class. Tutors also upload web links, which they source prior to the lesson so they can check the accuracy and appropriateness of the content and put the links into the learning platform.

In the class, the tutor guides students in navigating around the websites; this can be done verbally, via a handout or on the board. The tutor considers that this approach helps ensure that students use their limited class time effectively. The tutor also builds in some time for students to research specific topics, and records any good sites for future use.

Online activities include the tests and quizzes on the learning platform, research tasks using hairdressing websites, and use of the National Learning Network (NLN) materials. Tutors have developed some interactive materials, including tests and quizzes that are automatically marked and give feedback to the students. For example, one tutor has converted the tests for the theory units into electronic self-marking tests on the learning platform. Students also have a number of mock tests to use for practice for the exam.

Online summative assessment on the hairdressing NVQ is via the hairdressing theory tests, which have been adapted for the learning platform.

Tutors use a notice board facility on the learning platform to communicate key messages to the students. Students do not often use the learning platform's email because they can communicate with their tutors daily, face to face.

BTEC Music Technology:

As might be expected, the music technology course has a high technology content, and tutors are skilled technologists. The course tutors completed the college's online e-tutors course, which presented few problems for them because their ICT skills are good.

The learning platform has been used on this course for several years. Tutors have set the course up so that students must go on the learning platform to get materials and assignments, take part in group projects and check their grades, for example.

A large bank of course materials has been assembled. Tutors reported that the online resource bank is continually being added to and improved. For one tutor, the aim is to replace all the paperwork on the course with online documents; however, paper is still required for external verification.

There are a variety of online activities, including research tasks using music websites and Web 2.0 technologies. Tutors are starting to explore the use of tests and quizzes on the learning platform. Tutors developed a video tutorial for a music software application by using software to record the computer screen and create a presentation; this is being developed into a series of such tutorials.

All course documentation and assignment briefs are on the learning platform. Students consider this the major benefit of a learning platform. Tutors also use the learning platform to provide key web links for the students. As for the hairdressing course, tutors select key websites so that students avoid incorrect or inappropriate websites; tutors report that this shortens students' research time.

Tutors recognise that students have online distractions such as instant messaging and social networking. Tutors decided to use Web 2.0 technologies in the course because music companies increasingly publish demos via YouTube which tutors want to use. Music technology students have used YouTube in project work. Tutors reported that the use of Web 2.0 technologies has raised some issues in college: the effect on the performance of the college network is an issue for network staff; tutors recognise that students can easily be distracted by other content on the sites; and some staff are unsure of the educational value of these Web 2.0 sites.

The music technology course has a number of forums. Tutors find that some students are keen to communicate in forums but others will not use them.

The course is assessed by a portfolio of work, which is a mixture of different types of activities – for example, task analysis, where students prove they can perform the

tasks to the required standard observed by the tutor at the workstation, witness statements, compositions and so on – to demonstrate achievement of the learning outcomes.

Some use is made of the learning platform assignment-submission facility, although tutors have some reservations about online submission because it is more difficult to keep track of the work if some students submit online and some on paper. Tutors have not used the online feedback capability, because the external verifier requires written feedback. Tutors generally mark students' work on paper but enter the grades on the learning platform. Students are then able to view their grades and identify what they need to do.

ITQ:

ITQ³ is the National Vocational Qualification for IT users that demonstrates staff competence in the use of IT in the workplace. ITQ replaced ICT NVQs and has a high level of input from employers.

On the ITQ course, the initial approach was a traditional ICT course taught using print-based workbooks, with students creating a paper portfolio. During summer 2007, one tutor who was an experienced learning platform user with good e-learning skills – one of the creators of the e-tutors course – created an ITQ area on the learning platform and uploaded course materials. So far, online materials are available for the three core units of word processing, spreadsheets and databases, although ITQ has many more units.

Tutors and students now see the learning platform as the primary resource for students. Students can access the learning platform from the library or from other PCs, and it is not detrimental if they miss a session. The tutor commented that this flexibility has helped with retention.

Because students are in college three days a week, they often work from the paper-based version of the booklets rather than the online version. Some students access the materials on the learning platform from home. Materials are released to the students in stages as the course progresses, and students are able to get a couple of weeks ahead with work if they want to.

Most communication on the ITQ course relates to the submission of work from students to tutors. Students submit their work in the learning platform's digital drop box from where the tutor picks it up and marks it. The tutor can return the marked work via the same method and at the same time can provide feedback to the students. Learners commented that the feedback was often brief; for each piece of work, the feedback was a line containing the date, the title of the task and a brief

³ E-skills UK [<http://itq.e-skills.com/Introducing-ITQ/2017>]

encouraging comment from the tutor. There is some use of email within the learning platform. ITQ includes an email unit. The tutor uses the learning platform's email to communicate with students, but uses another standard mail system more frequently.

Most units on the course are completed by practical ICT tasks. In some units, tutors have created activities such as word-processed forms, drag-and-drop activities and so on, which students complete online. Students' work is marked by the tutor and stored in each student's electronic portfolio folder. This is an example of formative assessment being used to demonstrate achievement of course objectives, and is therefore also summative evidence.

The learning platform is used to assemble students' work, thus creating online portfolios. Tutors have standardised the portfolio so each portfolio follows the same structure. Students can view their folder but cannot make changes. The tutor commented that students do not feel they have the same ownership with an online portfolio they would have with a paper portfolio. However, the tutor thought that online portfolios have significant advantages for tutors, especially when working off site, because they do not have to carry portfolios. Students do not have to remember to bring portfolios for assessment, and they cannot lose their work. The tutor commented: "What I like about [portfolios on the learning platform] is that it is very structured. I think I have more control over what they're doing, what they're learning, where the evidence is going, finding the evidence and tracking the evidence. A lot more control over what's going on than when it's a paper portfolio." However, taking responsibility for the e-portfolios has increased the tutor's workload.

Internal verification and external verification are both carried out online. The external verifier is happy with this and rates the use of the learning platform for this task quite highly. The external verifier has suggested that tutors should record their professional discussions and put them on the learning platform; this is not yet possible because of a lack of voice recorders.

Animal Management Diploma and NVQ:

The Diploma course comprises a number of units, each with four learning outcomes. At the start of each unit, students receive a book with a course plan and details of the assignments.

Students are in college three days a week, plus for a Key Skills day.

The team was one of the first to start using the learning platform and has developed a course structure for each course. Most courses in the curriculum area have the same structure to help students find their way around the materials.

Tutors have good ICT skills, and one is a subject learning coach.

All course documents and materials are on the learning platform. Tutors have uploaded their slides to the learning platform for revision and consolidation or for home study. Students write reports for their specialist projects; tutors have created a learning platform presentation with advice on how to write this report. Assignments are online and there is also an enrichment section and a Key Skills section. Enrichment is project work, largely done in groups, including fund-raising activities for charities. Tutors now use the learning platform resources in the classroom. They find having all resources online saves them time and effort because everything is in one place. Tutors can review and update resources each year. Tutors also post links to useful websites to help students with some coursework assignments. Students found this saved them time because it removed the need to filter out the irrelevant hits that search engines yield. Also tutors could suggest key sites that would not appear in the top hits of an internet search. Some other activities in the course allow students to do research work in the library.

Students complete many practical activities, but only a small percentage of these are online. Activities that are difficult to do in class can be done online, for example dissection and wiring a plug – students have some simple interactive materials in Flash to help them.

Unit evaluations take place on the learning platform.

Learning platform statistics demonstrate that students use the materials from home during the week and at weekends. Students can access their learning materials and can also check their progress via the grade book.

Tutors have used the notices area on the learning platform to post information to the class, but it did not appear that this mode of teacher–student communication was used much.

Students use the facility to send emails to tutors, mainly on days when they are not in college, for clarification or help. Tutors' email addresses are listed on the learning platform. Both students and tutors reported that they often use normal email in preference to that on the learning platform. Students reported receiving prompt replies, even at weekends.

Assignments are generally submitted via the digital drop box and not via email. Some course evaluation is conducted online (eg about the classroom and tutors). On the Diploma course, students generally submit work on paper and it is marked on paper. Tutors are concerned about assignments getting lost and said that the external verifier wants to see paper evidence of achievement. Tutors enter the grades on the learning platform so students can see them and identify what they need to do. The curriculum manager can also see how students are progressing, check attendance and monitor performance. For units with end tests, mock tests have been created using questions from previous papers. On the NVQ, digital

evidence is more acceptable, and the team is looking at electronic assessment and evidence.

Literacy and numeracy:

The LearnDirect courses studied by students are wholly online and can be accessed at any time and from any place. Each stage of the course follows a similar structure: an introductory activity followed by tasks and an overall test at the end of each stage.

On the LearnDirect communications course, activities include correcting spelling mistakes in paragraphs, rewriting sentences to make sense, and using prefixes and suffixes. One activity involved using drag and drop to match subordinate clauses with main clauses to make sentences more interesting; this type of exercise seemed to lend itself well to the drag-and-drop technique. The activity includes sound, but audio was not practicable on the college computers.

LearnDirect courses also include an assessment of skills, which enables students to follow different pathways depending on the answers they give; students therefore have a personalised pathway through the assessment. On LearnDirect courses, online assessment is both formative and summative. The final exam is an online multiple-choice test. The Global Online Assessment (GOLA) system⁴ is being used to test Key Skills. GOLA is a testing solution from City & Guilds which enables providers to test candidates at any time, anywhere in the world that has a networked computer.

Is there any evidence that this formal online learning model is scalable?

It was thought that use of a learning platform confers scalability. All students at the college have a login to the learning platform. There were no reports of limitations.

LearnDirect is a demonstrably scalable model.

In what ways has the introduction of online learning had an impact on organisational issues?

Tutors all thought their workloads had increased because they needed to create, upload and manage the online materials for their courses. The ability to access the learning platform from home had led to tutors doing some work from home and also providing support for students by answering queries, posting to online discussions or sending email.

⁴ <http://www.cityandguilds.com/gola>

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

Students saw a number of benefits of online learning, including:

- Flexibility: students were able to work at their own pace.
- Personalisation: students could work at their level and pace and, because it was easy to go back over work (with a tutor if they were unsure), were able to completely learn each stage before moving on.
- The ability to consolidate their learning: students had a greater sense of having learnt something and liked the ability to go over class materials.
- The grade book helps students gain a clear sense of where they are on the course and where they are going.
- Hairdressing students thought they were able to consolidate the theoretical learning by going into more depth and detail, and the visual support in the form of pictures was very useful in helping them understand what the tutor was talking about.
- Using computers freed the tutors in lessons so they could provide one-to-one support, which tutors could not give in traditional taught classes.
- Students appreciated guidance from tutors on websites, because this avoided wasting time on irrelevant sources.

Tutors thought that students take more responsibility for their learning, although with younger students this can take a long time.

Some tutors reported that students can complete their courses in less time, without reducing the quality of their work.

The ITQ tutor found blended learning to be a better approach to purely online learning. When students come into college, it can be easier to build and maintain motivation for online learning; when people are busy, other demands on their time compete with online learning. However the tutor thinks that students are well motivated.

What issues are associated with remote online provision of formal learning?

For the institution:

At St Helens College, students can access the college's learning platform from a remote location. Students have access to the same facilities as in college. Technical staff reported that they have to deal with issues that arise in managing user logins and maintaining secure access to the college servers.

The use of Web 2.0 technologies causes some issues with the college technical team and with some staff who see them as non-educational.

The college has a substantial and increasing investment in technology and e-learning, encompassing the hardware and other equipment, accommodation for learning centres, staffing for e-learning, and training for college staff. Maintaining a high level of embedded e-learning will continue to require high levels of investment. College managers need to ensure that this investment produces the intended outcomes.

For teachers:

Tutors all said that their workloads had increased because they create and manage the online materials for their courses. Some tutors were only able to find time outside normal college hours to work on online materials; they are therefore doing much of the work at home. Some tutors are also responding to email queries from students outside college hours and locations.

Tutors found it difficult to build and maintain motivation for online learning. One tutor talked about an online European Computer Driving Licence (ECDL) course that the college had run, for which a blended learning approach was more successful because if people are really busy other activities encroach on their time. The role of the teacher in prompting and pushing students was thought to be important.

For learners:

Students said they had learnt a lot of things that were not taught at school, but this appeared to be more about differences in learning content rather than specific aspects of online learning.

The learners also experienced challenges. One student admitted that motivation was harder online because it was easy to get disheartened if there were difficulties or topics that were hard to understand. Students also thought they did not get as much detailed feedback on their work as with traditional methods.

Does engaging with informal online learning have an impact on the learner's willingness to engage in formal learning either at the same time or later in life?

We do not have a great deal of information to report here. Music students use computers, including Web 2.0 technologies, frequently. Students use social networking sites to communicate. Tutors are bringing Web 2.0 technologies into the music course by encouraging students to use video-sharing sites to view, analyse and critique performances. However, we do not know how much of the use at home is informal learning as opposed to entertainment.

Villiers High School

Villiers High School is near the centre of Southall in the London borough of Ealing, with a catchment of predominantly British Asian families. For 98 per cent of its students, English is an additional language to their mother tongue.

According to the chair of governors, approximately 80 per cent of school students in the area attend private tutoring in addition to school. Thirty-two per cent of students receive free school meals.

The online learning provided by Villiers High School is in the form of a virtual school – a learning platform.

Rationale for introduction of online learning

The headteacher heard about the Florida Virtual School while at a conference in the USA.

Since September 2006, Villiers High School has been a Next Practice study site with funding from the Innovation Unit to introduce a virtual school. The aims of the Villiers High School virtual school are to:

- explore the resourcing of personalised learning
- help students make progress at their own rates
- enable students to make choices about their routes through subjects
- help overcome the chronic problem for London schools of a shortage of specialist teachers for science, English and mathematics (which in turn leads to a reduction in teacher quality)
- explore the construction, resourcing and use of a virtual school; for example, can teachers use learning and teaching materials produced by others? how much material is available for use online? how can material be packaged into useful and self-supporting ‘learning journeys’?
- identify alternatives to traditional models for organising teaching in secondary schools and how can they can be implemented
- explore the extent to which a virtual school can be a central resource for all schools.

A preliminary field trial was carried out by Villiers High School between March and June 2007. The trial involved four other secondary schools in Ealing and focused on English, mathematics and science for Year 9 and 12 students.

Six teachers began by investigating how to create e-learning journeys (complete learning units). Three other teachers had a role as content scanners, searching for content that is either freely available or available for purchase. The one-month trial in June worked with matched trial and control groups.

The trial “worked quite well” but “there were some technical problems which put people off”; these technical problems delayed the start of the pilot.

There were two key findings from the trial:

- The trial concluded that “it is unrealistic to expect teachers to create virtual learning materials on top of their other work”. Teachers do not have time and “they don’t have the necessary expertise”. Hence, through a company, Exscitec,⁵ Villiers High School enlisted undergraduate students of science from Imperial College to develop materials.
- While the school could have chosen to host the virtual school on site, it decided it was not worth buying a new server for one month. The school has remained with external hosting since, for convenience.

The virtual school was introduced formally in January 2008. The virtual school is currently used in science, and only with the top sets in Years 7, 8 and 9, but the intention is to develop it for English and mathematics and extend its use to Key Stage 4. The headteacher is particularly keen to introduce the virtual school for English, because additional support is needed with the high proportion of students who have English as an additional language.

Model of online learning

All staff were clear that the model is a blended one and that it is important to combine online science learning with offline social learning. The three elements to the virtual school are therefore:

- Online learning materials: these are delivered through laptops or other computers during lesson times and are also available for students to access at home. Each unit provides 20 hours of learning content. Lessons are supervised by teaching assistants and the school’s librarian (the library has been provisioned with computers to enable it to be used for substantial periods of the week for virtual school work).
- Tutorials: these take 30 minutes in a small group with a teacher during lesson time. Teachers check how students are progressing, give feedback on assignments and answer questions from students.
- Practical four-hour sessions: there is one session each term, delivered by a team from Exscitec including undergraduates from Imperial College. These interactive sessions include demonstrations and hands-on experiences using science equipment. The sessions are designed “to reinforce the online learning and test understanding” and offer a problem-solving approach to learning science. Some units of online work suggest

⁵ <http://www.exscitec.com/about/index.asp>

practical experiments which can be carried out at home, for example using cabbage dye to test acidity or alkalinity.

The learning platform was chosen by the headteacher, deputy headteacher and network manager after they reviewed all the learning platforms available at BETT 2007. The platform was chosen because it is widely used in higher education and the undergraduate students could learn to use it easily (they were not given training on how to use it). The learning platform is open source and was free for the school, which was working with a limited budget. The functionality is improving all the time, especially since the Open University adopted the learning platform.

The platform is not currently used in Villiers High School for any other purpose than the virtual school. Only those teachers responsible for editing the online materials have been given training. A Year 8 boy reported that the platform was easy to learn to use – he got the hang of it in one day. One teacher commented that less technically confident teachers still struggle with the learning platform, and a deputy acknowledged that, ideally, all teachers and staff would be fully trained.

The learning platform is remotely hosted.

Undergraduates at Imperial College developed the materials. The undergraduates were selected on the basis of their subject knowledge and ICT skills. The hosting company provided a day's training for each undergraduate. Six undergraduates work in pairs, two for each subject; a 'teacher manager' reviews the materials and ensures quality control. The undergraduates spent one day with their teacher manager reviewing the National Curriculum for Science and planning their course. Between September and November the undergraduates created 60 hours of learning journeys. There has not been any revision of created materials in response to students' feedback, but extra material has been created to fill perceived gaps. The concept is of "adding capacity to the profession from others who have that to give".

The objectives are set out at the start of each lesson. The online materials on the learning platform appear to us to be of exceptionally high quality. The materials look visually attractive, with plenty of images, diagrams and tables, as well as text. Resources include teaching materials, games, formative assessments and assignments. The learning objects are entirely online, and around 75 per cent of activities are conducted online. Online activities are varied and include games, quizzes, crosswords and drag-and-drop activities. Offline activities consist of teacher-led small groups of four to seven (about half an hour per group per week) as well as practical sessions for four hours, once a term.

About 40 per cent of communication between teachers/mentors and students is online. Students have weekly half-hour tutorials with their learning managers (teachers) and are supervised in class by the librarian or a teaching assistant (these

are not teaching roles, and individuals vary in the extent to which they attempt to answer students' questions).

A substantial amount (estimated at 80 per cent) of student–student communication is online (this includes occasional spontaneous discussions). Students were observed to remain focused on their own screens during lesson time and to prefer to communicate online with other students in the class rather than moving around the room. Some practical activities require students to work in teams (self-selected) of up to four people.

Three-quarters of formative assessment is online in the form of quizzes and crosswords. The system requires questions to be answered before students go on to the next level. The system does some of the marking automatically, and students are given scores which enable self-assessment (although a bug in the learning platform does not allow these scores to be stored for teachers to review progress). With each learning object, there are multiple-choice texts, crosswords and writing to be completed. 'Virtual markers' (Imperial College undergraduates) give feedback, and work is also reviewed by the learning managers in the tutorials at school. Markers are asked to give two positive comments and point out one thing that could be done better next time. Also, when students are asked to write up accounts of the practical sessions, these are sent online to the mentors for formative assessment. Staff have access to the students' assignments. In addition, the face-to-face small groups function as a means for teachers to carry out formative assessment and to clear up any misconceptions students have formed.

One teacher commented that the quality of feedback from Imperial College students is not as good as that which students would receive from a teacher, although the headteacher considers the Imperial College students' feedback is better.

In terms of SATs, summative assessment is paper-based. There is also summative assessment offline every half term. At present, however, the results from this summative assessment must be transferred manually to the school's MIS. Some modules include, at the end, links to other websites (such as BBC news); this additional information is deemed 'extra-curricular' and deliberately not assessed. There are optional extensions for those who are interested in taking their knowledge further.

Practicals take place once a term for a four-hour period, and small-group tutorials take place for half an hour per week. As well as the session leader, two mentors from Imperial College (from a pool of about 20) are present during the practical sessions. Each mentor deals with about 10 students.

Registration is completed by the teaching assistants who supervise students doing virtual school work. There is no behaviour management software in the virtual school.

Is there any evidence that this formal online learning model is scalable?

To replicate this model, another organisation would need to duplicate the involvement with two external agencies. However, we consider that the virtual school could be scalable as a centrally developed national resource. The headteacher at Villiers High School is interested in making the virtual school available to other schools, who would pay a small fee to contribute to the costs of developing further materials. The headteacher points out that the involvement of undergraduates to develop the materials and provide online mentoring, assessment and feedback could be replicated across the country with universities other than Imperial College.

There was considerable interest among Imperial College undergraduates to undertake the work (enabling Exscitec to be selective) because they perceived it to be an interesting way of earning badly needed money.

Exscitec appears to be ideally placed to lead the development of a national programme.

In what ways has the introduction of online learning had an impact on organisational issues?

The four-hour practicals involve considerable organisation. Two laboratory technicians are required for a day to set up apparatus for 60 students; this makes a considerable demand on resources. Two laboratories are used simultaneously for the whole day (sometimes for different year groups, running the sessions in parallel, but pitched at different levels), so teachers who normally use these rooms must conduct their lessons elsewhere. Although disruption is minimised by scheduling practicals on days when students are timetabled to have a double science lesson, other timetabled lessons, such as English or history, are missed – it is not possible to timetable practicals that happen only once a half term.

Although some of the timetable changes were introduced to cope with a missing science teacher rather than specifically to fit in with online learning, online learning “gives more flexibility with staffing, but not as much as one would think”.

Teachers also commented on a time issue for them in either developing materials or meeting the undergraduates who are doing so. The teacher responsible for managing Imperial College students is not given extra non-contact time for doing so; apart from an initial face-to-face meeting, communication is by email, and it takes about two hours each weekend to read through the materials that undergraduates have produced and comment on these. Teachers are paid £1,000 for managing 20 hours of production. The corollary is that, because students from Imperial College do the marking, this frees up teacher time.

The library has been temporarily commandeered for virtual school lessons, with desktop computers installed permanently and laptops available to be handed out.

Books and chairs have been moved to make way for computers; the librarian is not happy about this, and, on the day of our visit, computers had been moved to reinstate an area with armchairs. Once the wireless technology in the school is strong enough (which the headteacher reports it is now), laptops can be used in teaching rooms.

The librarian's role has changed, as has that of a teaching assistant. Both are now timetabled to spend time supervising students using the virtual school.

What evidence exists of the benefits and effectiveness of providing formal learning outside the institution?

In assessing the effects of online learning at Villiers High School, we have borne in mind that the system has been in use for only half a term, with parts of selected year groups, and is still evolving. It may be, according to some teachers, that the 'novelty effect' has not worn off yet.

Students, staff and parents all commented that an advantage of online learning is that students can progress at their own pace. Students regularly log in to the virtual school from home, although the extent to which they do this appears to vary considerably. (Staff can access records of who is online at any time.) The students report that they love playing the games; some students say they go through the materials over and over again. A staff member from Exscitec told us of one student who, very soon after he had been given access to the learning platform, had gone through all 20 hours of learning objects at home without waiting to be asked to do them at school. When questioned about the materials, he showed he was knowledgeable.

Several teachers commented that they particularly enjoy working with small groups (which they do as an indirect effect of adopting the blended online system). Learning can be personalised and differentiated for individuals. The deputy head was surprised to observe that, in the online classes, students hang up coats and bags quickly and log in quietly, whereas classes with a teacher in charge take longer to settle. The deputy head considers that students still need a blended approach, with an adult available, but the adult does not need to be a teacher and does not need to be in the same room as the students.

Another teacher commented that the highly varied, highly interactive activities made the online lessons particularly effective because the students' learning was not passive.

One Imperial College student used computers to enable students to simulate the impact of the industrial revolution upon the population of the peppered moth – something they would not be able to do in the classroom. Students have also been

able use simulations to perform a virtual heart operation and measure the terminal velocity of a parachutist.

Teachers report that students' motivation is very high: "There aren't any behaviour incidents during VS [virtual school] time. Concentration levels appear to be high. Everyone in the class is very focused." Students have been observed to "run into the room". There is a very quick start to the lesson; students simply log in and start work. During our visit, students using the virtual school in the library worked past the time for break and needed to be told by the librarian that it was time to finish.

So far, there is little evidence of the impact of the online science course on students' attainment. Results of recent examinations were not available at the time of our visit. The results of quizzes and crosswords are not stored by the learning platform, and information from the Imperial College undergraduates on students' attainment in assignments was not obtained.

A science teacher reported that the experience of meeting female mentors and women from Exscitec motivated some girls to take more interest in science.

Also, Exscitec is able to offer practical tasks which ordinary schools struggle to provide, such as with liquid nitrogen. The four-hour practical sessions with Exscitec and the Imperial College undergraduates are regarded by both staff and students as highly successful; the students we met were universally enthusiastic about them.

A key aspect of the virtual system is that it can provide outside expertise in a subject such as science when schools either cannot fill a vacancy or do not have well-qualified staff to teach. The arrangement with Imperial College provides the required expertise from the school's point of view. (Students are less certain in their view: one student first said that the undergraduates understand more about science than the teachers, but later said that teachers know more. Another stated that students are more expert than teachers, but did not consider that such expertise is needed at Key Stage 3.)

The chair of governors was interviewed briefly; he is also a parent governor, and his daughter in Year 8 uses the virtual school at home. He has observed and spoken with students using the online course, and only three out of 25 said they prefer practical work to online work. He is broadly very supportive of the online science modules and sees online learning as "the way forward... fantastic!", although initially he was a quite sceptical. The chair of governors observed students who were working online managing their time well independently, and thinks the virtual school is good preparation for online courses in further or higher education in the future. A main consideration for the management is the expense: the school spent £100,000 on new laptops, which will be an ongoing expense, but the chair of governors sees this as an investment in the future – you need to "speculate to accumulate".

What issues are associated with remote online provision of formal learning?

For the institution:

In the small-scale trial, Villiers High School found that teachers had neither the time nor the necessary expertise to develop online learning materials. The solution came through the school's ongoing relationship with Imperial College, brokered by Exscitec: Imperial College undergraduates develop materials.

There have been several technical problems:

- The learning platform hosted on the school server “rapidly crashed” during the small-scale trial in June 2007. Significant problems arose immediately the school increased the volume of use of the site; these were solved by employing a different external provider to host the site remotely. The external host provides server capacity and online administrative support.
- Currently, teachers report that the learning platform has a bug and does not store the results of tests students have taken; this restricts formative assessment.
- A teacher reported finding it easier to monitor what students are doing face to face in real time than online because of technical constraints. The learning platform gives lots of pages of information about what students are doing, how long they've been doing it for, and whether they're working from home, but it just lists names without dividing students into classes or groups. It can take 25 minutes to check which members of a class have completed an assignment. When an assignment shows as incomplete, it is not possible to distinguish students who have not finished from those who merely failed to log out correctly.
- The undergraduates commented that there are various minor technical issues with the learning platform: it can be difficult to upload pictures or embed text if the source does not have an embedding link. The learning platform is not as intuitive as it could be. A new version of the learning platform is being developed, and this may resolve some issues.
- Transfer of data from assessments on the learning platform to the MIS must be performed manually; staff hope the commercial provider of the MIS will soon enable automatic transfer.

Another issue has been sustaining momentum and persevering despite other considerable pressures on time and energy. A deputy head considers it essential for one or more members of the senior leadership team to provide a clear vision and objectives for such a scheme. External support has been crucial – the group at the Innovation Unit has provided much needed encouragement and was “good at bolstering our resilience”. The Innovation Unit helped to shape the size of the initiative and plan, emphasising development in small steps. The group at the Innovation Unit talked to Villiers High School about the work, and the group's visits

focused the headteacher's attention and moved things forward. In addition, staff commented "It's been great talking to other schools."

Funding seems to us to be a potential problem. The virtual school has been developed with £40,000 from the DSCF and £40,000 from the school's own funds. The total development cost was £80,000. The money has now run out, so further development is funded by the school itself. In addition, the online system requires technical support staff. However, in the headteacher's eyes, this "shoestring budget has been good for us" focusing the work and leading to better potential for scaling up. The headteacher reports that the school's choice not to replace a science teacher who left in December 2007 meant that money was freed to develop the virtual school.

Theft of the equipment could have been a problem, the headteacher stated, but has not been: there has been only one incident of theft of virtual school hardware; stealing is a problem generally in the school, but the virtual school equipment has not been a target.

For teachers and assistants:

At the start, some staff were concerned about how the online course would affect Year 9 SATs, who would write reports, and what these would be based upon. These concerns, staff say, are fewer now.

One teacher also expressed the view that some teachers' training has led them to believe that, without them, nothing educational can happen.

While teachers enjoy the small groups, they find that the half-hour time slot very short, requiring strictly focused objectives.

Teachers say they miss the personal contact of class teaching, and fear that much of the benefit from practical lessons may be lost because there is little opportunity to follow up practicals.

Students now interact with several different adults. Students' behaviour and progress may also be supervised by the head of science and a deputy head as well as by a teacher, and technical staff deal with problems such as logging in. It seems to us that much greater communication is required between the many different adults involved with students than would normally be the case with a single teacher. A science teacher said she has no idea how the top set are doing, and that she feels she is not "part of the whole circle" – she feels left out; this suggests there are still some issues to be resolved.

The pedagogical value of the games doesn't seem to be clear to all involved. A deputy head saw the games as inherently educational and thought it was not a problem if students played them a lot. He gave an example of a game about

Pythagoras which had “no end to the learning” possible and included some university-level problems. However, both the librarian and the teaching assistant said they thought that sometimes students spend “too long on the games”. A small-group tutor said some students jump straight to the end of a topic to play the games. During the brief section of a game about the digestive system which we observed during the walkthrough, it was not obvious what the intended learning points were, nor could we ascertain by asking the student involved what she had learnt about digestion by playing the game. We believe that, if the school considers the games to be inherently educational rather than just a motivational device, assistants may need to be trained in how students should use them.

Teachers need to adapt their teaching techniques for small groups – small-group teaching requires a different technique from whole-class teaching, and teachers benefit from specific training. A newly qualified teacher, during the initial field trial, was perceived by other staff as not understanding as easily as a more experienced teacher would how to manage small groups.

Teachers differed in their view of how applicable online learning would be to a subject such as English. One English teacher involved in the pilot (who considers herself rather a technophobe) thought that the effectiveness of online learning would depend on what topic was chosen; a topic such as media studies lends itself well, whereas the topic used for the pilot, Victorian poets, “didn’t teach them much about language”. She observed students spending a lot of time chatting: “you’ve got to expect that – they’re crying out to interact!” “For me, it wasn’t a pleasant experience – it could have been... I was glad when it ended, and the class were too... You could see the negative comments in the chat room: ‘This is boring!’ ‘What’s the point?’ ‘I want my teacher back!’” The teacher believes that students need guidance in order to have a serious forum online – she already encourages students to send each other work by email and assess each other. Similarly, one deputy head said “A computer cannot analyse a poem – one suddenly ‘gets’ a poem in a eureka moment.” By contrast, a science teacher considers that English would be more suited than mathematics for online learning, and another English teacher was enthusiastic about the possibilities of animation and interactive games online, which would enable students to demonstrate their interpretation of, for example, a scene from a Shakespeare play. He considers that most available English materials for online learning at present are too similar to textbooks, with videos instead of pictures.

One teacher commented that, normally, the school places a high emphasis on meta-skills – “learning how to learn: what skills am I learning, and how can these be transferred?” She considered that, during the pilot in particular, these meta-skills were overlooked and lost.

The online relationship between teacher and student appears noticeably changed from a face-to-face one. Teachers commented that, in a class lesson, students tend

to be keen to interact with teachers; however, when the teachers acted as virtual teachers of students in another school, who did not know them, the students did not seem to want feedback, even when offered. Students in the teachers' own school, who did know them, turned to them, rather than their virtual teachers online, for help.

For learners:

Staff interviewed reported a number of issues relating to timetabling and staffing. A common comment from both students and teachers relates to the lack of a teacher online to answer students' queries immediately. The evaluation of the June 2007 field trial showed this lack of a teacher to have a positive effect because it encouraged students to be resilient and resourceful. Students found the answers to their queries themselves and by asking each other. One aim of the online system is to encourage students to support each other in their learning, to help make them independent of a teacher.

We are uncertain, on the basis of students' comments, how much students are messaging about science, and how much they are just socialising and 'off task'. A student from Imperial College who monitors messages on the forum is impressed at the scientific and moral questions students discuss. However, a Year 7 boy stated that if students keep messaging, they have to stay behind for 10 minutes. The same student said that he had never messaged another student for help. At present, students' messages to the forum, but not personal messages to each other, can be monitored. While some teachers said they would prefer to be able to monitor both types of message, one student expressed concern at the lack of privacy if messages are open to teachers at all.

The librarian, teaching assistant and a science teacher thought that double periods (two hours) spent working at a computer screen were too long, especially for the younger Year 7 students. The librarian had observed students becoming fidgety, so she encouraged them to get up and stretch and have a drink of water (from bottles in their bags) half way through the lesson.

A Year 9 student thought she was missing out by not having a teacher, and spoke highly of a science teacher who taught her in Years 7 and 8. She was very enthusiastic about the practical sessions. The issues she raised were as follows:

- Limitations of the materials, which do not cover topics in the depth necessary for Year 9. (The student is aware that the materials are the same for students in Years 7 and 8.) In previous years, the student was used to the top-set students being extended by the teacher. "If loads of people say to you that virtual school is not a good idea for our school because we do not learn as much as we should and we've got SATs coming, is it possible for you to shut down this thing?"

- Anxieties that she is not being properly prepared for SATs: “I don’t know if I can trust the website to give me good marks in my actual exam.”
- Feeling let down that she is being used for “an experiment” in this important year when she is about to choose (and needed to demonstrate her ability for) her GCSE options.
- Although the student feels more in control of her own learning in the virtual school, she fears she may make the wrong decisions. Teachers know your potential better than mentors who have never met you, and so are more likely to push and extend students when completing assignments.
- Comments from the online mentors are insufficiently detailed. Unlike the practicals, which covered new ground, the teacher-manager at the tutorial may cover only areas which have already been addressed. “There is never enough time” – only about one tutorial every seven lessons.

Some students seem ambivalent about the online lessons. For example, one Year 8 student said at the start that it is more fun learning on your own, because in a regular class you do not always get your viewpoint across; however, later, he commented that he prefers class teaching, because he can respond to other students’ comments.

Students reported similar issues as the staff did about the games. Most students find the games hugely enjoyable; one Year 7 student mentioned a game that was removed because it was too popular. The student says that students can play games but “not too long” because some “mess about on games”. A Year 8 boy said the games are fun but “not much about science”.

Several students (as well as some teachers and parents) commented on the lack of a teacher or mentor to ask questions of, and of delays in online responses.

The students interviewed did not report any difficulty talking to the undergraduates during the practicals or contacting them online. The relationship becomes like “an extended family relationship”.

Teachers consider that, in order for lower ability students to use the materials, the literacy level required would need to be lower, perhaps with less text, easier vocabulary, or more pictures. Lower ability students are also perceived by some teachers as less able to cope with the independent learning required online.

Difficulties with students who do not have access to a computer at home can be obviated by lending students school computers, or by students using public libraries.

For parents:

A small focus group of three fathers was also interviewed. While the views of these three cannot reliably be taken as representative of those of other parents at the

school, they do illustrate the importance for schools of informing parents about the details of online learning if parents' support is to be won.

The school says it sent out letters about the virtual school at the start of term. However, everyone in the focus group said that they did not receive much information about the online system and had heard about it only as a result of being invited to join the focus group. The fathers' children had shown them the site for a few minutes.

All three fathers expressed strongly negative views towards the virtual school, but based, it seems to us, on misconceptions about how the scheme operates, or about how computers and the internet are used in school. In particular, the fathers did not seem to us to appreciate that the online element is part of a package including practical sessions and small group tutorials – their attitude appears to us to be based upon the online element alone.

The chief concerns expressed in the focus group were as follows:

- Students are not supervised by a proper teacher, trained in science: “there is no teacher in the room”. The fathers believe that students need to be able to ask questions and receive prompt replies, and need supervising to ensure they are properly on task; the fathers do not seem to have confidence in teaching assistants to do this.
- Some students may not know how to use email to ask questions of mentors online, or may be too shy or not motivated to ask about what they do not understand.
- Science is a practical subject, and students need to work with things like Bunsen burners and thermometers: seeing a real ball fall is a better way of understanding gravity than looking at a diagram. Online study gives no hands-on experience. The Year 7 daughter of the father who made this comment was also interviewed by us, and made similar comments that the online course was “boring” and involved too much reading.
- If students have access to the internet, their behaviour needs to be monitored, as for adults at work. Otherwise, the focus group would prefer that information is just available via the school's site so that students do not require access to the wider internet. (Comments from staff and students were contradictory about how much access to the internet students actually have. The undergraduates carefully check that links they provide will still be live when used; a deputy head states that the school policy is broadly one of high trust; the head informed us that the students' internet use is filtered by London Grid for Learning. One Year 8 boy said he enjoys researching on different sites; however, a Year 7 boy stated that students are not allowed to use a common search engine or common online encyclopaedia in school, and a Year 7 girl was not sure if these

sites were allowed. In fact, both sites are available to students within school.)

- The process of assessment is not adequate. Students need prompt feedback to ensure they have understood topics before moving on. An online system cannot probe the students' understanding as a teacher can – students may just copy and paste information: “you can't cheat with a book”. The focus group members see online courses as making teachers redundant.

These parents are aware of some valuable uses for computers and some advantages to online learning. They recognise that students can progress at their own pace. Even though students can make faster progress through the course, the parents wonder what happens when these students reach the end of the course.

Does engaging with informal online learning have an impact on the learner's willingness to engage in formal learning either contemporaneously or later in life?

There was limited evidence from this case study to answer this question. However, a Year 7 boy said he would also like to learn mathematics online.

Appendix B: research design

We addressed the research questions through a combination of a comprehensive knowledge-mapping exercise, interviews, focus groups, video observation and online data-collection activities. Drawing on the approach undertaken in the Home–School Links project (Mavers *et al.*, 2001), we identified, both from the literature and from key informant recommendations, institutions and organisations that are facilitating innovative and trailblazing uses of formal online learning. We selected eight institutions in which to conduct detailed case studies.

The knowledge-mapping exercise was undertaken during the first four months of the project and included a review of literature – policy documents, academic papers and grey literature relating to Key Stage 3, 14–19 educational provision and other sectors – that can inform the research or may have the potential to be transferred to these sectors. The knowledge-mapping aims to provide examples of existing models of remote online learning that could inform Key Stage 3 and 14–19 provision.

During the same period as the literature review, 14 in-depth interviews with key informants including policy-makers, senior leaders involved in online delivery in schools and further education colleges, and commercial developers of resources were conducted. The key informant interviews enabled us to add to those existing models identified through the literature, highlight instances of innovative practice for the case studies, and consider issues associated with the provision of formal online learning.

Drawing on the knowledge mapping and the key informant interviews, we selected eight instances of online learning to use as case studies:

- Bridge Academy (pupil referral unit)
- City Technology College Kingshurst
- Kirklees Collegiates, a partnership of Kirklees Local Authority, the Learning and Skills Council, and Calderdale and Kirklees Careers, together with local schools, colleges and work-based learning providers (specifically, in our case, with Spen Valley Sports College)
- Monkseaton Community High School
- Leicester Further Education College
- The Sheffield College
- St Helens Further Education College
- Villiers High School.

Each case study was undertaken with either two researchers or over two days (in some cases both), which enabled us to collect a wide range of data from different stakeholders. The nature of each instance of online learning dictated the specific

nature of data collection, but in each case we aimed to complete the following (or equivalent):

- Thirty-minute individual interviews with six learners (selected to be representative of the group). Interviews provided a learner's perspective on the use of the online environment, motivation and engagement.
- Three interviews with key stakeholders at the institution, including teaching staff, school managers and technical staff. Each individual interview took up to one hour and provided a range of different perspectives on the feasibility and effectiveness of the model, the transferability and scalability of other models to the situation, and issues associated with remote online provision.
- One focus group, where possible, with six to ten parents or employers. These focus groups provided perspectives on the provision of formal online learning outside the classroom and highlighted additional issues. Where it was not possible to arrange a focus group, alternatives were explored such as individual telephone interviews with employers.
- Two observations of learners interacting with the online environment; these were conducted using 'think-aloud' techniques in which learners were asked to talk through their thought processes as they used the environment. We were able to highlight the issues associated with the use of the environment from a learner's perspective.

The researchers who undertook the case studies produced case study reports, structured using the original research questions. The project directors then edited the reports to ensure consistency and comparability; this formed the first stage of data reduction.

A cross-case analysis was then undertaken. There are different approaches to cross-case analysis; in this research project, first all the case study reports were examined and coded, based on our judgement of what was relevant to the questions under investigation. The codes were then grouped under themes and sub-themes (some of which existed in the original research questions), and the themes were used to structure the report. Nothing was quantified, but themes and sub-themes were cross-referenced to the source of origin (the case study), which indicates whether the theme is particular to one case or occurred in more than one.

We have thus taken a thematic approach to generating findings that relate to the key research questions. We have not attempted to look for patterns beyond this (ie relationships between themes), because we are not convinced that this would reveal anything useful and also think that the cases are so different that patterns may not exist.