Shawlands Academy - communications technology as the catalyst for transformation

This report is of visits made in February and March 1997. The school was then at an early stage in its use of the Internet.

1 Local context

The school is on the South Side of Glasgow. Although it is in a pleasant residential area, the environment is urban.

2 The School

The school has 1500 pupils between 11 and 17. It has a very good reputation academically. 40% of the children are from ethnic minority backgrounds, many of Pakistani origin. It is the largest multicultural school in Scotland.

The Head is newly appointed though she has been a teacher at the school for some time. She is fully supportive of the school's increasing use of information and communications technology. There is also a Deputy Head, a team of 6 Assistant Head teachers. The prospectus gives full details of all staff, subjects, facilities, results etc.

Ratio of pupils to computers: 150 computers 1400 pupils

See the school web site for more data, also the Prospectus

3 First impressions

School: an imposing late 19^{th} century red brick building. Long corridors. I am told it was originally built as a hospital. Very quiet. Welcome notices in hall. Notices up in main hall in Urdu, Punjabi, Chinese and English. Urdu and Chines banners on pillars - Id Mubarak and Chinese New Year have almost coincided this year.

4 What the school has done with ICT

The teacher in charge of computing tells me that about 18 months ago he set up a computer communications club - a small group of 5th and 6th year pupils. In Feb/Mar 1996 the school had an Internet connection installed and set up its web site. Use of the facility has so far has been restricted by only having the single restricted connection. One boy is now updating the web site and a small group now preparing more material for web site.

Last school year had an Internet week, with 2 hours a day access to look at what interested them. About 20 used it over the week. Main focus of interest was football but, for example, found information about football in Brazil in Portuguese.

Since August, some children are using it for research, in an informal way. This is the Internet Club. One has wanted to find French web sites, another has wanted to get information on microchip fabrication, e.g. via Motorola; another has used it to help with comparison of Acorn and PC operating systems. They are allowed to work with very light supervision.

This will now change fast with the telephone connection installed in one computer lab; some computers are already networked: it is hopes each connection will stretch to serve about 6.

The Achievers International project (see below) started at Shawlands in late 1996 and is enabling a small group of children to explore communications technologies. It will be extended to a whole class later in 1997.

5 Plans for ICT

RC one of the Assistant heads tells me he has responsibilities for:
- learning and teaching and raising levels of attainment
- management of staff - school ethos
- links with external agencies - funds etc. - and business/industry links

It is in this context that he sees using the Internet as important - as a catalyst for taking the school forward.

Several senior staff described the school as at the start of a sharp learning curve.

At the time of my first visit (early February 1997) I was told support was gathering in school for Internet activity. Previously the school connection via modem was shared, so activity limited activity.

At the beginning of February a line had been installed directly into computer lab, a second line was to go in very shortly, and a 3rd line next school year. Each line would initially be to a single school department but as interest in Internet activity grew would eventually serve more than one department.

A new project using communications technology was planned for Physics and Geography (see 9 below) and a Comenius project using email with a school in Germany would start in Autumn 1997.

A school Internet Committee meets regularly and oversees developments.

Meeting with teacher in-charge of IT

Most curriculum-related use of computers is for word processing and for databases. Some teachers e.g. geography and Communications use interactive CD-ROM. A geography project with the US is just starting. Projects with the Internet need to fit in with the curriculum, with clear benefits to all involved if there are external partners.

There is limited use of the Internet for information and research: the Library has an Internet facility, used for careers work - it links on to databases. A little use of the Internet by children but they were found logging on after school hours so were discouraged from using this computer. He is in touch with thinking in departments mentioning Geography and Physics (see below). He also mentions modern languages as a department that is not yet interested - they don't see how to use it . What can be done with only one computer in the classroom? The main use if the Internet now is through downloading selected pages for off-line use. The head of computing ususally does the searching for departments. Most teachers don't have time.

JC has been in the school only just over a year. At present he is developing for the school a policy on IT helped by a document from SCET and the Glasgow IT adviser who had previously prepared the Strathclyde policy.

Equipment renewal is a difficult issue. In most classrooms they are still using BBC software. Problems of costs for more, and for more links to Internet. Server ware is still very expensive. Staff want to work in own bases, not centralised facilities. Four will be on-line initially. Departments are encouraged to use their financial allocations for equipment if teachers have good ideas for its use, e.g. scanners or digital cameras.

Meanwhile, many children have Internet access at home. And children now arriving from primary schools have high expectations of IT.

6 Staff development

I meet with JC, the assistant head who has special responsibility for IT and also for staff development. He describes 3 existing modes of computer use in school: "hard use" in subjects like computing; use in other subjects; use by teachers.

Teacher competence and confidence is a prerequisite before teachers will use computers in front of students in the classroom. He has developed a strategy which aims to give every teacher the opportunity of getting such confidence. First, computing facilities are distributed around the school - every staff base (there are about 20) has up to 3 computers with laser printer and CD-ROM drive. These are used to generate teaching material and handouts.

Opportunities for training in IT now form part of almost every in-service training day. The next such day for example will focus on development planning, but there will also be some time committed to IT including an option on Internet. Normally there is now a full half-day available for IT.

This came about after a staff audit of technology in late 1995 revealed a widespread need for very basic training. Some teachers had never turned a computer on. On the first occasion there were 3 rooms each with up to 20 staff getting their first hands-on experience - very high demand. He uses TVEI self-instructional packages[1] for training: he does a quick demonstration then leaves staff to get on. The school has now put very substantial investment into open learning packages for training in IT applications such as Excel. These are available at all staff bases.

[1] A former Government funded initiative on technical and vocational education

There are now pockets of expertise about the school. A few people are comfortable enough to use IT with their colleagues, some peer work amongst teachers is beginning.

The Glasgow Education Support Service also provides some training, in evenings, for those who can't find time in school hours. Sometimes the school send individuals for training eg Internet training outside the school.

7 Activities observed: The Internet Club

The Internet club prepared the school web page, established a presence for the school on the NET. A community is now starting to develop - the club now has to learn to manage it

A club meeting Lunch break. Three boys aged 16. All have Internet access at home. (Teacher says girls aren't interested. He hopes to open up club to 4th year as soon as access is improved. He is in process of trying to set up new facility which will attach several computers in the same room to one modem/ phone line. 2 sites currently working. One modem is teachers own modem from home, school only has one).

One boy is working on a new addition to school web pages which will cover school science facilities. He is doing this as part of a computer science personal project for assessment. He is writing and programming in html. He demonstrates to me what happens when he makes a deliberate programming error - he is quite at ease with the work, was one of the boys who prepared the Web site a year ago.

The other two are at first separately, eventually jointly (as the connection keeps going down) searching for material for projects - they are finding up to date information about microprocessors which they would not be able to get in paper form. They are finding pages then noting the address. The teacher has done a bit of preliminary investigation so he can point them in the right directions.

The teacher is in the room too, very preoccupied with trying to get several computers working on the same network connection. Network software - the school gets it free from Acorn as an extra for buying Acorn computers. The teacher is trying to get money from school funds to buy another modem. He thinks the extended network may not work because some of the computers have very old software and network cards.

Internet club - an interview In March I meet with 2 boys from the Internet club - both aged 16. They are looking at the Mailbox project page as I arrive!
Computing History:
1 From when aged 7 had access to BBC computer at home, used to play games. Now has access to family Mac, main user, has had Internet access for one year. Uses computer mainly for school work, doing homework. Also does Music, uses apple for composition.

2 Had Amstrad about 10 years ago (age 6-7), then Spectrum, now PC, with Internet connection. Used at first for games - now uses it a lot - uses Internet a lot for investigations, likes changing things on the control panel, is starting to do own home page.

Uses in school: Environment - coming up; French - teacher quite interested in idea of pen pals, But teacher doesn't know much about it, teachers seem to be frightened, limited work with IT
For getting information - teachers wouldn't think to use a computer - "Go to the library" they say, never "search the Internet" - Teachers think the Internet is games.

Most pupils are still quite frightened of computing. Some even when they submit word processed essays do drafts on paper first. Teachers themselves don't offer word-processing as an option for homework, though they do accept - even like - it. They told me about a third year girl who can do word processing but doesn't want to be the first in her class to hand in word-processed work - she is frightened of the teacher's reaction.

They talk about computing a bit with their friends - maybe about games - sometimes in casual talk just before class starts, while waiting for teacher, talk about how useful the Internet is. Occasionally friends come round to their homes to see what the Internet is like or to search

If they have Internet at home, I ask why they come to the Club at school. They like doing work on the school home pages with other people, they like the social element of surfing together, they end up looking at/ finding things they might not find alone. They also like to get familiar with different types of computer.

What changes do they think should take place in school? There should be suitable computers and equipment in different subject classrooms - for example in the English classroom a printer for printing out drafts. They suggest there should be training for teachers on how IT could be used in their lessons, how it could improve their lessons. Get them interested - somehow!

8 Activities observed: Achievers international

"Achievers international" is a project to help older school pupils to develop enterprise skills and give them some experience of international trading. It is supported (in Scotland) by Scottish Enterprise, a Government agency, and a number of major companies. The basic idea is that with the help of a teacher a small group of pupils sets up a company and starts trading with a similar group in a school overseas. One stated objective of the exercise is for the young people to get "hands-on" experience of business transactions using the information superhighway.

February I attended a meeting of the school Achievers group on 12 February in the lunch hour. The school company consists of seven 17 year olds, four girls and three boys, the majority from ethnic minorities. Four were present. The business studies teacher, assistant head are also present, as is the project organiser for Scotland who has come to see how the group is getting on. The company secretary is absent. The company chairman D chairs the meeting and does almost all the talking.

The company was started with a loan from the Bank of Scotland, and they used part of this to buy a fax machine. Their partner school is in America. They are having some technical difficulties with the fax, and are anxious that they have had no reply from their American partner since the last meeting a week age. They will start tracking faxes as this is becoming something of a problem. Communications difficulties are slowing the project down and jeopardising it. (In fact it is possible that part of the difficulty is that the partner school routinely uses email - see report of second meeting below).

They have identified some products - Scottish souvenirs - which they hope their American partners will purchase. There is to be a video conference shortly, arranged by British Telecom, another project sponsor, and they discuss purchasing samples to show at the video conference. They discuss pricing: they will need to find out postage cost (Federal Express), weight, decide which products they prefer and which they want to promote most.

The visiting organiser briefs them on the video-conference planned for the first week of March. The young people will have 20 minutes shared with their partner school in Georgia USA to set out their wares and negotiate. Discussion of how this time could be well used - set out points, plan but allow for flexibility. 2 have done video conference before. There is a big team - over 20 - in the Georgia school. They decide to send out their individual mini biographies in advance - they will prepare these next week and fax them with a photo. This will reduce time on introductions. At the next meeting in one week they will look at the sample products.

The project runs to an annual cycle, finishing each May. A Russian professor had visited the school the previous week. The organiser tells the group that this professor wants to get Moscow schools into the programme next year. The group is excited.

Background After the meeting I talk briefly with the organiser. The programme is now in its second year in Scotland. It began with 10 schools, has mushroomed this year, with a target now of 100 Scottish schools by September.

The schools may have welcomed the programme because it provides a very good way of exploiting communications technology. Besides the video conferencing element most schools use email for communication. Shawlands is about to do so as well.

The contribution of the project to learning is new, both in its content and in its emphasis on team-building. The role of the teacher becomes that of advisor to the company and facilitator of its links with outside resources. Royal Bank of Scotland backing covers loans for start-up and costs of currency transfers. Strathclyde University provides accreditation for children and for teachers involved.

Some schools, like Shawlands, treat the project as an extracurricular activity, for lunch hours and after school. Many have fitted it into the curriculum; it can count as experiential work in schools piloting the new Higher Still curriculum (Scotland). [2]

March I attended another meeting. Again four are present. This time the teacher takes the lead throughout the meeting. She arrives with hard copy of an email from America - their first email!

At the video conference last week the group was well prepared, did well (I later discover that the Managing Director has TV experience - presented a 90 minutes youth programme 18 months ago). A press release will go out about the conference. The group looks at the text. It seems Al Gore faxed his apologies for not attending the video conference!

The Shawlands pupils had offered key rings and teddy bears to their American partners. On the conference they had agreed on key rings and not teddies, and to send 30 key rings at $7 each.

The email that arrived was very friendly. The partner school was really pleased that things had finally got going - but they said they wanted to negotiate price down to $5. An immediate reaction from a girl whom I had not met before was No, $6.95. Is she perhaps the chief entrepreneur?

How should they open negotiation? They start by thinking of replying by email.
D: Are we going to get a chance all to go on the computer to send an email?
Teacher: The problem is the computer lab is being used at lunch time
Subject closed - it will take them some time to get used to email! Nobody seems to realise that the lab is in fact used for Internet activity.
They talk further about how to communicate. Fax? Teacher suggests they might phone: D agrees perhaps it would be best in person.
Meanwhile there are problems in reviewing the price: no-one is sure of the purchase price of the key rings, nor of the carriage cost. The first isn't recorded, the second with a group member who is absent.
The transactions and minutes of meetings are entirely paper. What are filing arrangements? What about keeping records on disk? What about spreadsheets for price calculations? Setting up financial records?
Some good thinking goes on - selling a larger number, getting a discount. Eventually the girl goes off to check the price, by telephoning the supplier, and comes back with a discount agreed (though the amount has to be negotiated). The group works well. By the end they are agreed that D will ring the Americans later (has to think twice about time difference) and bargain from a starting price of $6.50 down to $5.50 if necessary. "Phoning is better for bargaining"; the girl will check later with the supplier on delivery dates for the key rings.

They think all the time about <u>selling to</u> their partners - the notion of mutuality has yet to emerge - they too will have to sell the products they will be sent from America. But of course they want to make money....For them it is real, not just school experience, a project - now there may be money round the corner. Attendance a bit wobbly - will it change when the money comes in? They are apologetic they haven't done better, got further.

This second meeting gave considerable insight into the educational value of the project. The groups is acquiring coping skills - coping with communication, for life and for work. Over the two meetings they discussed and used different means of communication, prepared their c.v., made phone calls, present information in orderly fashion, learnt something of keeping records, made decisions, negotiated, worked as a team.

Why don't they use computers more?
After the second meeting I interviewed 5 of the company members - 2 girls and 3 boys. They had all had their first experience of computers at primary school - very limited experience - typing their name and playing a game. At secondary school it was not until the third and fourth years that they had taken computer studies. In the 5th year they had begun to use word processing for essays. They told me you could learn typing with a computer if you took basic studies.

I asked them how they used computers. One only reported significant use in school, helping with automation in the library. Another said a course in school had helped get started using a parent's

[2] By my second visit in March it had been decided that Achievers International would be incorporated in the school curriculum from the start of the next academic year.

computer at home. Another had a computer at home, uses a lot, and one had a modem at home. “I don't do much computing at school - they don't let you.”

I probed further. How were computers used in school work? One mentioned drama - searching for scenes/sets for preparing portfolios. Another English - typing up essays. Another said he couldn’t type. Clearly this group had very little exposure to computing, needed more ideas, lacked basic skills.

Was the Internet important? Yes because
- may be using it at work
- can do searches
- can contact people outside the country

School should be teaching it. Access at lunch time would be good. (They were not aware of - or perhaps not interested in - the Internet club)

They told me that there were computers in classrooms but they tended to be older machines. One recalled a time a teacher used the BBC computer in the Biology laboratory; it was a waste of time because it was just used for novelty, there was no curriculum relevance. They don’t think the teachers are tuned in to computers - they notice some still prefer typewriters. Warming to the subject, they say it would have been useful to have Internet access for research, etc. There are CD-ROMs in the library, but it is not always easy to get at them. As the Internet computer is in the computing lab, the problem is how to get in if the teacher isn't there. It is not so much the quantity of computers that prevents their wider use but the way they are managed. Access is the main issue

Career hopes:
- media related
- RAF
- medicine/pharmaceuticals/business management
- business admin.
- archaeology/theatre (doesn't see computers being part of work)

Comment The young people’s analysis of the school situation is sharp, in line with the view that have led to the strategy of giving special priority to ICT activity. The pupils could not be expected to know about the greater accessibility of Internet facilities, as this was very new. It was interesting however that they had not seen how the Achievers project helped them develop communications skills.

It was clear that these young people would leave secondary skill with different individual levels of expertise in computing. It is to be hoped that this is the last generation to go through secondary school without acquiring in school basic computing skills - confidence, basic understanding of system, basic technical skills, keyboarding etc. These young people had had very little hands-on experience at primary, but for younger children there will be a danger of losing the competence they have gained at primary.

9 A new initiative: the BT project

During my visit in February a meeting with Scottish BT (British Telecom) took place to discuss possible funding for a communications project in environmental technology involving the school. By my second week of visits a month later the project was agreed. The school would communicate with schools in Northern Scotland and would get a satellite facility as part of the project. They would collect weather data, and use the Internet and video-conferences for teaching in areas such as telecommunications, health physics, energy, space physics, transport. The Physics and Geography Departments would be involved. On my second visit I met teachers from these departments (JL and DM). Both described their approach to using the technology - decidedly curriculum led.

The work would be planned during the Summer term, and start in August. “The course is intended to be delivered by way of a series of **pupil based activities** with suitable teacher instruction/ oversight. This is the central thrust of current educational theories, that a **sense of ownership** of work is essential and that learning must be **active**.”

If the trial goes well with both classes they will then expect to move down through the year groups. They see the scope for other subjects, but not many staff are yet aware of the project so thinking hasn’t started. The Head’s view is that the project will stimulate cross-curricula initiatives, will involve pupils so that they will take on more responsibility, and IT will catch their interest and motivate them.

Physics The Department had two key interests: the reception of satellite pictures; and using the net . In Scotland, which has its own curriculum, there is a chronic lack of appropriate textbooks -the market is not large enough. Teachers have to prepare and hand out typed sheets. The subject of Health and Physics changes all the time - teachers need access to up to date material. For scientific photographs for example, handing out photocopied pictures is unsatisfactory, the quality is awful, no good for this type of subject. Teaching with poor material like this leads to passive learning, no sense of ownership, no active learning.
Using the Internet addresses all these problems.

The Physics teacher aims to lift the subject status above pen and pencil and number crunching. The approach also takes into account implications for teaching when children come through who have done the new 5-14 syllabus. He hopes to make the subject more attractive and stop further decline in numbers opting for physics. There are problems recruiting girls to study physics - an all male department of 5 teachers. The teacher has made contact with the local equal opportunities officer, and hopes to redress the balance through attracting girls to the project. Other factors may help a female neighbourhood engineer has just been appointed, and Glasgow University has a programme on accessibility of Science.

Geography Very little IT use in the subject at present. There is an HMI publication which he uses but the things suggested are not easy to put into practice - not easy with 1 computer for 30 children. He will try out video conferencing with 3rd grade classes, who will contact a school in the highlands - a completely different environment - and they will share information. At present for example there is a mapping unit in their course where they study the area of Loch Torridan. They have videos, slides, etc. but very few children have actually been there. Direct contact with pupils there will hopefully improve their learning. He still has to work out in detail how to integrate into this video conferencing into the course.

The teacher describes himself as “still at the bottom of the learning curve”, and does not wish to take on too much. He sees this as a “useful extra” - an opportunity to introduce some IT into the Geography department. He recognises that he and his colleagues will need training, and wants to have maximum training in the shortest possible time.

Will they involve their departments? In Physics there are 5 staff. The teacher would like to do the first run through himself but recognises some others might like to be involved and he will give them the opportunity. Eventually all classes in the department are likely to get involved though one will use the system to start with. Geography has a staff of 2.5. Anyone could be involved, but DM will be responsible in year 1.

10 Talking to subject staff

1 SC is Head, Social and Vocational Skills. Much work in the subject is research on housing, leisure etc. She has a wide range of pupils, and it is hard to resource the best children, to allow them to stretch themselves. She wants to get the better children using Internet to do research for their individual projects. Her present class - working quietly while we talk - is 35 fourteen year olds, exceptionally large for a secondary school.

She tells me the pupils have individual ways of approaching things. She would like to set them criteria for their work and leave them to it. There are always two or three who want to do things differently from the rest. She foresees the Internet helping the children to get ideas - bright children can expand their research skills, Asian children can follow up their interests. For research they won't have to go out into the city where there are issues of safety and, for example for Muslim girls, parental approval.

She uses the example of art: the Internet can be used for written work, to research artists, find data from libraries etc. She shows me an illustrated project book on Picasso done using Internet by one of her less able pupils. The girl's brother has an Internet connection and helped her.

What convinced her the Internet would be useful? She went to the Cybercafe in the city a couple of times to find out for herself! Her department is to get its own connection soon.

2 PC teaches Business Studies. She volunteered to be the teacher for the Achievers project because she was interested from technical point of view. I interview her in her normal classroom. It is set up to learn typing - rows of benches with 20+ old Apple macs and a server. These replaced typewriters 7 years ago. But they are still used mainly for “typing” - the children learn word processing and some do spreadsheets for accounts.

"I've been in teaching so long I'm not really aware what's out there". She sees Achievers International as an inroad for her as teacher to using more technology, such as fax and video conference. The pupils too are volunteers.

She would like an Internet link in her department. She recognises that she will need specialist help at first, but she is interested in using communications and needs easy access to experience it properly.

Some of the children she teachers have PCs at home, though she is not aware of much Internet access from home. There is no demand from pupils for the Internet at present.

She talks of when primary children in their last year visit the school. The children are now always very used to computers, to colour not black and white. When they get to Shawlands, they get no computing in Year 1, in the second year they now get keyboarding, in the Office and Information Studies subject area. This gives computing, business processes, accounting and finance as separate options, with one period a week in second year for keyboarding. In the third year they can do touch typing as an option, as preparation for office work. This attracts classes of 20, usually about 60% girls. The children tend to work individually at their computers, developing skills.

Has being involved in Achievers International changed the way she teaches? It does not operate in a classroom set up, has a less formal, less rigid teaching environment from what she is used to. She feels comfortable but is nervous that it might be hard to work with a whole class: "the need to watch, if it is within the curriculum, that it remains within the school disciplinary framework."

I asked her what she felt the Achievers group had learnt. Here is her list:
- sticking to commitments if they volunteer
- working together brings a return
- enjoyment of interactive communication
- coping with technical difficulty (e.g. video conference sound not working well)
- using the technology
- bargaining
- handling a business phone call
- making initial contacts with people

And what about her? She has enjoyed the use of technology, and is learning how to organise herself differently.

11 Conclusions and comments

Top priority in the school development plan is development of learning and teaching, and greater use of ICT is central to that. The observation of a large school in transition shows on the one hand that using ICT does start to generate the kind of change that is envisaged and on the other hand that the scale of change is very great, as is the challenge of managing it. A few observations follow.

Perceptions It was striking how amongst those I talked to teachers and children alike had positive attitudes to ICT but saw other people - teachers, colleagues, pupils - as uninterested or unwilling to help. There is much work to untangle crossed wires and persuade people to see things differently.

Access: The strategy of distributing computing facilities to staff bases fits well with what I heard from staff, but the contribution from the pupils added an interesting extra dimension - the need for equipment in classrooms appropriate to subjects e.g. printer for English drafts. Pupils may have further interesting ideas on dissemination and access.

Given that some children already use home computers for school work, home and out of school computing need to be considered as part of the development strategy. Scottish schools run, for example, homework clubs known as ***Study Support Groups*** for disadvantaged children. Why not put a computer linked to the Internet in the rooms used as an opportunity to enhance learning?

Skills progression: there was a contrast between the pupils I interviewed, all of much the same age. Those that were very competent with ICT had reinforced in school what they had learnt at home. It appears that the curriculum for ICT in-school needs a lot of attention, perhaps building on existing skills of new entrants from primary. Keyboard skills should be a core skill not a subject. In developing school IT strategy, it is in line with the thinking of the Scottish curriculum body to emphasise curriculum led activity - following for example the plans of the physics and geography departments.

Skills for teachers - **think** technology. Teachers need confidence and specific ideas - they do not think to offer options of going to the library or searching Internet for information. How can innovative practice best be spread across the school?