2 Biography: the making of a career

This chapter provides an overview of the professional careers of participants with a focus on their interest in developing computers in education. It describes how they got into teaching in the first place; looks at their first involvement with computers and their experiences of using ICT. We go on to look at the different roles participants took on during their careers and their reflections on these roles. We note highlights and difficulties in their careers.

Getting into teaching

It was very clear from all the interviews that participants held a deep interest in teaching and learning which informed their later interest in computers and with computing. The first question is where did this interest in teaching come from? For a small number teaching was something they knew they were interested in for a long time. As one recalls:

> I don't know, it's difficult to say...certainly throughout the time I was doing my degree...and I went from school knowing that I wanted to be a teacher. I'd had happy experiences at school and there were a number of teachers who I had either consciously or unconsciously adopted as role models.

However, for most teaching had not been a long held ambition, rather it was something they had settled on and usually from a mix of motivation. It was something that involved people, it enabled them to develop their subject knowledge; it involved social commitment and it gave them a job. Here, one participant highlighted subject involvement:

> What got me into to teaching, whether in school or HE, was a essentially an interest in the subject and wanting, because I'm a mathematician, wanting to pursue the subject more. And I found from a very early stage that the best way to find out more about something is to teach it to somebody else.

Two of the participants particularly highlighted the opportunity to 'make a difference', one felt:

> And I suppose the motivation there is…has always been…still is that kids deserve the best education they can possibly have. You know they all deserve the best start in life they can have. And if what they do with their lives after that is up to them but it shouldn't be determined by any failing in the quality of their education. Really why I wanted to go into teaching was to help get them on their way.

There were more pragmatic motivations too, three in particular spoke about having young families and the need to earn an income, as one put it:

> I got into teaching because I was single, divorced, and I had to work to earn for myself and my two children and in 1970, I think it was, I couldn't think of any other way I could cover the school holidays other than being a teacher.

Thirteen of the participants took a teacher training course in most cases a post degree one year certificate (PGCE) but in two cases a four year degree focused on education with a teaching qualification (BEd). Two went directly into teaching from full time study, one from doctorate study into Higher Education and another into school without formal training. They began work in different sectors, primary (4); secondary (9); further education (1) and higher education (1). All were able to go on and describe satisfying experiences of teaching often based on establishing relationships with those they were teaching and productive interaction in the classroom. They found the job of teaching was one in which they could innovate, develop professional knowledge and gain a wider perspective on the societies in which they lived. All developed an intrinsic interest in teaching and learning and spoke about the fascination of observing how pupils learnt. This was put forcefully by this participant recalling her first experiences of teaching in inner London:

> And I loved it, in fact that has been a theme throughout my professional career. I've always loved it, I've found it, it's what Papert calls hard fun. And we'd be in work at 8 o'clock and we would leave at 4, go down to the teachers' centre for a course and then socialise with each other in the evenings. We lived and breathed what we were doing.

Another drew attention to the personal insight she gained from understanding children's perspective:

> I became fascinated by the interaction between myself as a teacher and the children and a whole revelation about how what I was hoping to do was often not what was understood by the people I was working with…..I find teenagers, I still find teenagers, completely fascinating.

However others were able to recall more mixed experiences of teaching, as one recalls:

> So the truth is I never really had much time as a teacher to settle into any kind of routine… Some of the things I was doing I was really pleased about, went very well. Particularly areas like teaching mathematics, teaching English, and playing with the use of computers. Some things didn't go well, I had a few difficult classes, I had to sort out all the usual problems with behaviour management.

One who had gone into teaching without formal training found his first experience in a city school a challenge and was pleased to move out:

> Teaching maths at an intercity London school at that time wasn't easy. I found myself not well equipped to taking on all the problems of classroom teaching then, I think I'd be much better at it now.

Getting started with computers

For a small minority an interest in computing, or electronic technology in a wider sense, had long been there, as one recalled:

> In the 60s there was a powerful belief, the Harold Wilson thing, that the future lies in the white hot heat of the technological revolution. I can remember reading a book talking about communication technology. I was an undergraduate doing electronics; I was also interested in politics and a member of SocSoc (*Socialist Society*), also the University film and television making club – technology mediated experiences were important to me quite early on.

Three could recall seeing computers during their studies. One of these had attended a course in artificial intelligence while another saw an effective modelling with computers within his subject, geography:

> The lecturer had access to data and we used that as part of this multi-variate analysis. We used a programme for a technique called trend surface analysis whereby you've got your factor for your multi-variate analysis and then what you can do is effectively create a kind of 2D representation of the landscape of that factor, hence trend surface. And what you could do is get a representation with contour lines of where the outliers were and so on so this enabled a kind of visual presentation. It was really fascinating because it enabled you to make visible something that wasn't actually a visual phenomenon.

Another recalled how she and her colleagues had become 'very excited' about the first word processors introduced at university:

> It was amazing ….we all talked about can we use it to type up our theses using that machine because at that time universities were leading the field.

Others too recalled the important role Universities played for teachers by offering courses on computing and use of facilities. One participant recalled a chance encounter that led to collaboration between his school and the local polytechnic (now university):

> I taught in a secondary school from 1967 to 1973 and I was teaching kids one day about distance, time graphs and I thought 'I know we could take the coach out and stop it at points and we could actually end up with a distance time graph from a real life scenario'. But I wanted somewhere to take them to on the trip so I took them to the local polytechnic and the computer centre.

In spite of the work being done in higher education only two could recall any mention of computers in their initial teacher training - one of these went on to encounter an early enthusiast for computing in his placement school:

> The computer was an item in the classroom because I was placed in a school where there was a teacher who was also very keen on computers. So he was the one that had

> to 2 or 3 Commodore Pets and it was a case of finding useful and interesting things to do with them.

However this very early involvement with computers was rare. For most, their awareness came from the media and very often through friends or family. Five participants mentioned the role of husband, wife or boy friend in this. Two were married to teachers who had brought home a computer from their school which they had looked at together. A further three participants had partners who 'worked in or with computers' and described how they came to meet up with people with an interest in technology. Two describe developing a shared interest with their partners, one recalls:

> My husband was made redundant in 1979. Coming home on the tube that dreadful day, he picked up a newspaper it said 'Have you been made redundant? Would you like to become a computer programmer? Join TOPS' (*Government supported Training Opportunity Scheme*). We continued in parallel careers ever since.

While many participants did not rush into using computers nearly all had very immediate reactions to software they had seen, indeed it was striking how many saw a potential value straight away, as this speaker put it:

> It was just one of those things and it grabbed my attention, and I just immediately saw as a mathematician what a great tool it was.

In contrast, a few felt less sanguine. This participant was disappointed by what the machine offered but at the same time she did not want to ignore it:

> We looked at these tennis games and peculiar things like that on the computer and how they were teaching the children to programme and I kept thinking 'I'm sure theses things are going to come into primary school before very long and I haven't really got a clue what they can do for primary education'.

Computers arriving in school

Most participants were working in school in the late 1970s and early 1980s when the first microcomputers were arriving in schools. A small number sought out uses for these machines from the start, but for others the process was more gradual:

> I was taking my early steps with the use of computers in teaching and learning in schools, there was increasing wider interest in that as well. I couldn't pick out one thing, or one person or one element that was particularly influential, I'm just aware that the kind of climate that was changing - there were more courses, or if it was a course that wasn't specifically to do with the use of computers in subject teaching, nevertheless there would be more mention made of them, there was more activity generally, more networking of ideas around that.

All, to varying degrees, saw almost an inevitability about the use of computers, as one put it:

> Computers were beginning to be thought to be everywhere in business, you know it was obvious it was going to grow.

Early applications

For most that initial interest was focused on 'small' programmes, often simulations, and content free packages, such as databases, word processors, and *Developing Tray*, a text revealing package in which pupils construct a text by predicting words and phrases. Simulations often involved modelling real life events, giving the learner an opportunity to interact with the model:

> In history there was a range of very imaginative ideas from things like being in a situation where there is a war about to break out between these two nations and what are you going to do about… so you then make a judgment about… so you then get the consequences about the war.

Amongst content free packages databases were valued and three recalled census style projects:

> We had basically a database programme. It would handle census data. And the BBC, or whoever published the programme, supplied it with some data for a village in Lincolnshire. What we wanted the kids to do was interrogate a database about our local village, which was just next to where I was teaching. So we'd got access to the local census data.

Three had particularly strong interest at the time in *Logo* and other forms of direct programming by the children themselves. One described programming using a Commodore machine:

> So for example, on the early computers you'd take the sort of the *Logo* principle, if you like, and give the kids a few commands that are easy to understand and let them make stuff happen. Well you could do stuff like that with something like the Commodore Pet because it didn't have the same kind of graphics system, but it had a system where, what we call Year 5 children now, could easily learn some of the Commodore Basic commands to make things happen on the screen, to draw simple pictures basically…..It was rather *Logo* like in the principle that it was open ended it was investigatory problem solving type learning as opposed to just following a work sheet. And it would keep the kids engrossed for quite a long period of time.

From the start, their interest was fuelled as they saw (or strove to see) something in the use of computers, which seemed to support ways of teaching and learning which they found appealing. We discuss this in more detail in the philosophy section but, put briefly, desirable teaching and learning very often involved learners taking responsibility and exploring something they would find interesting or relevant. As one participant explained when talking about a new integrated humanities course in which computers were going to be used:

> There was a tie in with the computer. We were experimenting with ways of giving kids more, people now would talk about, ownership of their own learning ... a phrase that wasn't particularly current at the time, though I don't think we used that word, but we wanted the kids to take responsibility for what they were doing.

Pragmatism and falling into roles

There were pragmatic considerations in everyone's interest in computers in that they sensed computers had a high profile and this provided career opportunities, but this did not drive their interest. Over and over participants speak of a combination of circumstances which lead them into roles, very often ones which they had not sought out, developing the use of computers. For example for two, this falling into a role came about from their interest in mathematics and the belief widespread at the time that computing was almost a branch of the mathematics curriculum. Ideal was an interest in both mathematics and computers:

> Like many other things it falls on you, in those days it fell to the maths department and I came to join a maths department, and as I was interested in ICT too it fell to me.

In contrast two other participants were quite deliberately asked to teach computing because they were not mathematics teachers and were not men, countering another widespread assumption that computers were for boys. One described this as follows:

> The principal at the time walked in and said we have mostly female students. We need a female who will do the computing. You're it. So that was my first introduction to a desktop computer which was of course the Commodore Pet.

However, no matter their route into using computers, or their uncertainty, they all quickly became identified as the natural person to approach in their institutions when computers were mentioned. As this speaker put it:

> I took on being interested in ICT in the classroom and then it sort of naturally grew like, every time there was a new project or topic I was one of the obvious ones to be involved in it.

How others assisted them in developing an interest in computers

Although at times participants were thrown into roles all had some quite striking support, or at least encouragement. Very often this was 'just in time' support with someone having a considerable impact on their career often through relatively small acts. One, for example, discussed the support from the head for a one year secondment:

> I was talking to my head teacher about it and he said 'well why don't you apply to go on a computing course because apart from anything else we could do with somebody in school who knows something about it'.

A similar experience was shared by this participant who remembered her head teacher putting her forward for an LEA initiative:

> And my head said to the inspector I've got a teacher who knows about computers and so we were the only school in the LEA at the time who were part of the first pilot scheme for Computers into Primary schools, that's where it all started.

Another recalls the encouragement of a colleague to take part in what was then a ground breaking international project:

> The NUT (*National Union of Teachers)* rep at my school, said, I've just seen this thing that's come through from the NUT you might be interested in. And it was to apply to be part of something called the UK USA communications project and the NUT was looking for 20 teachers who could be part of a two year, collaborative project with the United States with the NEA which was the American union. So I applied for this and took part in it.

Sometimes participants could recall practical help – someone providing equipment or programmes to use as in this case:

> About 1977 when we got micro computers and our first engagement with them was actually with the company that produced this 380Z and they said they could lend us, or rather give us basically, six 380Z's which we could put into local schools.

And some received direct invitations to take part in projects:

> It came through that they (*the project coordinators*) were wanting teachers as authors of educational software and because I had a background in writing and in publishing poetry I thought I would do it…. And so off I go and find there is me and 11 men who are science teachers who were all very good at coding the BBC.

Assistance also came in the form of courses put on at Teachers' Centres and other forms of in-service. Two had one year secondments in which they were able to develop their interests. HEIs were influential in the very early days, one reason was that they could house mainframes and schools could not. One recalls a lecturer leading one of these courses:

> She ran a course for teachers in London to learn how to write computer programmes for educational purposes. She was a computer studies lecturer. What was stunning about her course was that she had read the papers from the National Development Program of Computer Assisted Learning, which was a higher education project that ran in the 70s. She took the theories …and applied them to secondary education.

Maintaining an interest in computers over time

Participants' interest in computers was strengthened over their careers by their growing confidence with the technology and their emerging status as knowledgeable about computers. Their roles in education were changing and their work involved a greater focus on the use of

computers, something which, not surprisingly, strengthened their commitment and interest. They were often using technology for their own purposes too and could see its usefulness, for example word processing their own writing, and, in many cases, the hold the home computer had over their own children's attention. However, they would not have developed a professional interest without their positive appraisal of computers in school even if, over time, they gained greater awareness of the difficulties teachers had in using them. Many came to write more formal appreciation of these opportunities and difficulties in the various reports or papers, but all shared the experience of some striking examples they had seen in the classroom. For example, one remembers:

> And I think some of the things that I've seen since that I think were little landmarks ... things where you think 'yes, there's something really useful here'. Things like *Logo* or the old sort of *Developing Tray* activities that really mean that children have to think through to find the answers …

Several participants spoke of computers providing activities which allowed hitherto unsuccessful learners to 'shine':

> I remember a child who had very severe behavioural problems, who was just totally engaged and worked with others in the team to work the answer out in a way that he wouldn't have done normally. It's something that captures their attention.

Taking on new roles and experiences of those roles

All the participants at some point moved from day to day teaching roles to become developers of software and / or advisory teachers and lecturers in higher education. In nearly all (12) cases they had a strong involvement with initial teacher education and teacher professional development in different contexts.

Developing software

With the introduction of computers in schools came a demand for software. The technical limitations of storage meant that only small programmes could be developed – ones which made rudimentary use of graphics and sound – but this had the advantage that coding could be carried out by small teams of enthusiasts and amended quickly. Very often there was a close connection between teachers and designers and between designers and coders. Seven of the participants had an involvement in creating software, either by trialling software produced by colleagues or in three cases becoming closely involved in the design of software. Participants were often invited to take part based on their growing interest in computing and education, two had technical knowledge of programming but for others it was design that was an attraction as with this participant asked to help a small production company based at a school:

> So it was this sort of little group of teachers with computer programmers, who were actually their own former pupils and they were doing really well but they decided that they needed someone with more pedagogic knowledge who would handle the trialling of their software and input into the design.

Often the programmes were simulations of some kind, for example one recalled the modelling of a snooker game which he had designed and another a simulation of an archaeological dig in which you had to deduce what lay beneath the surface from clues acquired as you advanced through the programme. Two were involved with the MEP software and a further participant taught on computing in education courses. He helped teachers develop their own programmes for use in school, some of which became available to other schools.

Those who took part in developing small software recall this time fondly. It was a very creative, engaging period as one put it 'I thought it was one of the most interesting things I could think of doing at the time.' They were also aware that the software was making a difference to schools and could see the impact it was having in the classroom. However software projects were invariably short term and exploitation of ideas became much longer, expensive and commercially riskier as the technical sophistication of machines increased. Some (two in particular) maintained a career long interest, within a wider role, of creating software and later multi media content for learning resources but nobody held a development role full time. They moved on to other roles.

Advisory work

Nearly all had some part in advising teachers and five of the participants had taken on the role of advisory teacher. These five had extended experience in the classroom and were particularly confident about their teaching. They recalled feeling very positive about working with children and, not surprisingly, they had some reservations about leaving the classroom. However, they shared a motivation to get a wider view of what was going on in schools and this seemed a logical step:

> It did make me understand that it was possible to work across schools rather than within a school, because up until then all my experience had been within the one school.

Again participants spoke fondly of this role. They felt they were having some impact in classes, they were working in teams and their involvement with computers often made them feel that they were on the cusp of educational change:

> I loved being an advisory teacher, being part of a team, all of whom I adored. We really did love working with each other, so there was again that strong social sense. And we were dong stuff that nobody knew how to do, nobody had done this before, we were running these courses.

While they missed their own classrooms they found working with adults an attraction of the job, though it took some adjusting to:

> I really enjoyed working with teachers…I enjoyed working with teachers more than I enjoyed working with children in all honesty. Except that the further you go away from the classroom the longer it takes to see the results of what you're doing. And that takes a bit of getting used to because in the classroom you get fairly immediate feedback. When you're working with teachers you can…they're not always as revealing as children. Perhaps being older they've learnt to keep things under their hat a bit more. It's only a bit later really that you find out from them, not just whether they've taken on what you've been trying to teach them but whether they've been able to use it in the classroom and how that's gone.

Higher Education

Two began their careers with posts in Higher education, rather than school, and a further three had been encouraged to apply for posts in initial teacher education very early on in their teaching careers as they were seen as having specialist computing knowledge which the institute needed. One participant found himself teacher training after only two years in schools:

> Yes, it was a case of tutors who I had met when I was a student inviting me to apply. And other little things had happened. So for example, after I qualified and went off into my first job, I was putting on odds and ends which involved promoting the use of IT. Because clearly it was a new thing and everyone was starting to get into it. But there was a great shortage of people who had anything at all to say about IT.

Others followed into HEI, in some cases pushed by the changing role of the advisory teacher, but very much pulled by their need or 'passion' to 'find things out'. Many went on to speak about the enjoyment of the work with student teachers and the in-service work they had carried out. They enjoyed the time to carry out their own research and a greater sense of autonomy:

> I think it's fantastic that part of my work is to read stuff, and find out stuff and so on, and that's a really positive aspect. One of the things I really like about working on the courses that I work on here, and the nature of the work that I'm doing, is the opportunity to meet people from a really wide range of backgrounds, people who perhaps are living in other countries over here for summer school for example. Just to be part of that exchange of ideas and life experiences that you get in a higher education context - I'm not suggesting that that doesn't happen in a school, it does but of course it happens in a different way.

They, too, felt the satisfaction they had always felt that as teachers they were making a difference, for example when seeing:

> some of the things that some of my students now do in terms of producing resources that actually support their teaching, using video clips or still pictures in particular programmes. Students coming back and saying 'Hey, I was able to do that.' That's something in all of us, why we teach, whether it's trainees of children that they come back and something that you've taught them, or worked with them on has actually succeeded and really done well.

However, the move to higher education involved a sense of loss and most spoke about difficulties of adjustment – much more so than with previous roles. One felt guilt 'for the first 6 months' about not being in school; two felt at a deficit in their teaching skills when working with student teachers; several felt a lack of control and creativity and others missed the more permanent nature of the relationships formed with students:

> I had this sense that being a higher education tutor was all about getting close to people then them abandoning you.

Reflecting changes in Initial Teacher Education during the 1990s one spoke about the routine nature of the role particularly strongly:

> I can't believe it I did 10 sessions a week of introduction to computers. I had a flask of tea down in the computer room because I didn't have any time for any breaks, and it was just awful, looking back. And then moving, it was 'I can't bear this any more, I can't believe what I've come down to', to be honest after working where there'd been a view of curriculum and excitement and all of this, well coming down here I was in tears for the first 18 months, I hated it. Because it was very boring and I didn't realise I had any power to try to change things.

Researching computers in education

All of the participants were driven from the very beginning of their careers to know more; to know more about teaching and learning; to know more about themselves; to understand the contribution of computers to learning. As teachers they saw it a natural part of their practice to reflect on what they were doing and the impact it was having on learning. Even if they were no longer teaching in school they all saw a close connection between research and practice, between their interest in research and being close to teachers concerns and achievements. This involved several participants with a long lasting interest in action research. However differences emerged between those wanting to continue their close association with teachers but develop their work in a more 'academic' direction – at least in terms of engagement with research methodologies and approaches to learning at a more theoretical level - and those who were more focused on practitioner audiences. Six became very much involved with finding an academic voice; they wrote regularly for academic journals, joined editorial boards, carried out larger research projects and were asked, at times, to present key notes for research conferences. Seven were less engaged but nonetheless developed an interest in academic output, at least as measured by the RAE, and three were much more focused on practitioner

research publications, newsletters and offering direct support for teachers. This range of activity seems likely to have been through a mix of personal preference and features of the environment in which they worked. Several commented that they felt it was very difficult to engage in academic research fully because of teaching work loads and here there was an added complication as they felt teaching really mattered to them and they wanted to devote their attention to it. All were aware of the different cultures of education departments; here this participant compares his institution to others:

> There are people around doing good work but they are largely in the research universities with a research ethos more inclined to say if you want to do that go on and do it but here we don't have that ethos we are a teaching institution.

What qualities did they need to develop their careers?

We can see that the environments in which they worked created opportunities to develop an interest and, in many cases, a passion for developing the use of computers in education. At the same time these opportunities would have been unfulfilled if they had not been alive to them and willing to take advantage of them. One participant explains this in terms of a door being opened:

> I mean I do try to be a reflective person and I think I do examine myself and what I do at times but what drives my career...its' probably been an adaptation to circumstances - that's not a *driver*, that's a capacity - but you know I haven't set out to be adaptable. I've also been highly fortunate in that various opportunities have come along, and I guess to some extent I am pre-disposed to say yes if an opportunity presents itself - so you know back in school I said yes to being involved in the writing of a series of text books. In a sense I said yes when the opportunity arose to become an advisory teacher, but I hadn't said to myself early on 'oh I'm going to be a teacher for a certain period of time, and then I'm going to be an advisory teacher as a stepping stone to doing something else'. I've never been that strategic about it, but what I have tended to do is when a door has been opened, and I say been opened as I haven't necessarily opened it myself, I've tended to go through it. I could have gone back to my job in school full-time at the end of my secondment but actually I said no, I'll give the work at university a go.

What do comments like this tell us about the way participants developed their careers? First, they were prepared to try things out – to learn by doing as illustrated by this participant talking about using computers with pupils for the first time:

> I went into one of these [schools] where my wife taught and met the head and I always remember … I got the kids sat on the floor, I got the machines on the table and the monitor for them and just got on with it.

All accepted a sense of responsibility for their own development and did not mind taking a lead. They were amongst the first to use computers in schools, they were instrumental in setting up networks, in designing new courses and in research groupings.

Second, in learning by doing there was a willingness to take calculated risks. These risks were rarely dwelt on so that there is a 'matter of factness' in their accounts of doing something for the first time, taking on something they might not know a lot about, or moving jobs. However, many did take career risks, accepting short tem contracts for example, and worked in insecure environments. Some faced funding crises of one kind or another and around half the sample had difficult periods in their careers in which their futures were uncertain. Four expressed frustration over changes in their institutions which had made their roles precarious. Most recognised that they lost out financially by moving out of school.

Third, running through the accounts was a sense of being driven both in their teaching and their commitment to 'working it all out' for themselves. There are many examples of this in their accounts, for example their willingness to take computers home and learn how to use them in their free time, working late to develop bids for funding, finding time for writing and taking higher degrees. As one put it 'you clearly had to do a lot of learning yourself. And the way to do that in your own time, weekends, things likes that'.

Fourth, in developing their work with computers all were instinctively collegial, something we consider in the community chapter in more detail, and looked for opportunities to work with others, in and beyond a single institution. For example, they describe developing and maintaining research networks, sharing ideas, offering practical help.

High points and low points

Not surprisingly, high points in participants' careers often brought together collaboration, flexibility and creativity. As one comments in recalling an in-service course he ran for teachers:

> It was really an extremely good period of time. We weren't telling them the answers, we were trying to work out together what the potential was. We were teaching …doing programming and all the rest of it so that gave us quite a lively environment in which to develop ideas really with three or so staff here and plus 12 – 16 teachers all with the same interest, same agenda.

In contrast low points, and we failed to find anyone who had serious reservations about the choice of career, included feeling thwarted by controls over the curriculum, over their working practice, over the scope for innovation in schools. Nearly all spoke of their satisfaction with their work but a recurring theme was a disassociation when their concerns for autonomy and for collaboration were not addressed. This is expressed by one participant here looking at the difficulty of team work in a new environment:

> But now, trying to use that team to build complementary skills, we were forever thwarted by bureaucracy. And then I tried to do the same when I came here, but the halcyon days of team work that I remember have gone … I perceive that in formal education now there is a closing down in favour of a conformity to a particular way of working. That is very evident everywhere.

As we explore in the policy section low points tended to be associated with the more recent past and high points very often early points in their career. Is this a case of experience tempering youthful enthusiasm? Often they recognise that their early careers were particularly exciting - it was a new field, they were new to their roles. As this speaker noted:

> I think as you get older is the realisation that there are things that you are just not going to be able to do, it does actually dawn on you. Whereas when you are younger you think everything is possible.

However, the participants continued to be motivated to explore new technologies and took very seriously the idea that there has been a closing down of educational innovation in the more recent past.

Summary

This chapter gives an overview to the careers of the participants and introduces the major themes of this book. The participants describe their early association with computers. Often this fits a pattern of awareness of technology; perception of its opportunity and application in an educational setting. Their careers are products of an interaction of person and environment. We can see a great deal of consistency in their attitudes of technology, their motivation to teach, to work with teachers and to reflect on teaching, but there are contrasting roles and different types of commitment to research activity. These have been satisfying careers in many ways which have engaged participants' imagination and creativity, though they have also felt thwarted by institutions and policy.

This chapter leaves many questions unanswered which we will return to in the following chapters:

About technology:

Can we identify what has been gained and lost, particularly in the development of software, during their careers?

About application

Why is the introduction of computers so problematic?

About philosophy

How do beliefs about teaching affect the use of technology?

About policy

How has policy helped develop and helped constrain the use of computers in school?

About community

What are the achievements of the research community and what are the challenges?