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RESEARCH ARTICLE

What happens as student teachers who made very good use of ICT during pre service training enter their first year of teaching?

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Abstract

This paper looks at new teachers' use of ICT at the start of their first year of teaching. A previous study was made of 40 student teachers (May – July 2007) who were identified as very good users of ICT. This is a follow up study involving 30 of these 40 participants during their first months of teaching (November - February 2008). Drawing on interview and observation data the study describes the use these new teachers make of ICT and considers the factors which encourage and discourage that use. It finds that they continue to see ICT as supporting both their whole class teaching and pupils' independent working. The impact ICT has in the classroom provides the underlying rationale for its use by new teachers. Environmental factors, including access and expectations in school, further influence ICT use. Pre service training remains a strong influence, in particular past modelling of ICT use by mentors and tutors. The findings are discussed in the context of the wider literature.

Key Words: new teachers; student teachers; ICT

Introduction

This paper reports on a project tracking student teachers into their first year of teaching. A previous paper (Hammond et al forthcoming) reported on 40 student teachers who were seen as making very good use of ICT during their training in a university-school partnership. 'Very good use' was considered in relation to frequency, variety of use and role in meeting curriculum objectives. These student teachers would use ICT in their teaching, for example they would regularly use an IWB (Interactive whiteboard) to present their lessons and demonstrate activities. They would use some of the interactive tools available with IWB software and would often use images, and at times multi media, in their presentations to clarify ideas and draw pupils into a topic. They would also encourage pupils' use of ICT, for example leading pupils to produce interactive presentations, to explore resources over the WWW and select specialist software for young users such as drawing packages and the floor turtle Beebot. Very good users were seen by mentors (supervising teachers) and tutors as being able to reflect on the contribution of ICT to pupil learning. All very good users of ICT were also seen as very good in most other aspects of teaching. The study uncovered some necessary conditions for developing very good use of ICT. Not surprisingly, first amongst these was access. Student teachers needed ready access in order to use ICT and they needed to use ICT frequently in order to become good users of ICT. Secondly, they needed to see ICT use modelled by tutors and by mentors and they benefited from the encouragement of their peers. An important contextual factor was their extended experience as users of ICT for personal and academic use. In their placement schools they encountered varying levels of access, encouragement and technical support and this affected their development. This present paper reports on what happened as these teachers started working in their new schools. As such it raises questions about the experience of the first year of teaching and the conditions which support the use of ICT.

The first year of teaching

Much of the literature has tended to stress the challenges which new teachers experience (*new* here refers to teachers in their first year in teaching). Such teachers encounter difficulties in taking on new and demanding roles and may feel a lack of control over their classrooms. They are often seen as discarding what was learnt during training and particularly susceptible to a form of 'strategic compliance' or adjustment to values and practices of teachers already in school (Flores 2005). The particular paths taken by teachers have been described over the

years (e.g. Bullough, 1987, Dever and Hobbs, 1998, Massengill, Mahlios and Barry 2005, Nimmo et al 1994, Rust, 1994) and at times by teachers themselves.

New teachers have often been seen as needing more support to address the pressures which they experience, in particular, in difficult teaching situations (e.g. Romano 2008). It is not then surprising that support for new teachers has been extended in many countries. In England (Teacher Development Agency (TDA) 2008) new teachers are entitled to a reduced (90 per cent) timetable; are supported by an induction tutor (usually a senior teacher) with meetings and observation of lessons; and encouraged to plan for their professional development. In addition the TDA is keen to stress the positive feedback most new teachers give on their pre service training (TDA 2007) and indeed a large scale survey for the General Teacher Council for England and TDA (Hobson et al 2008) highlighted the satisfaction which very many new teachers derive in their first year in school. High points include forming positive relationships with pupils and colleagues; having a greater sense of professional autonomy and authority; and successfully taking on challenges and succeeding in addressing them (Hobson et al 2008). Of course new teachers encounter low points: the demands of their role; their workload and paperwork; challenging relationships with pupils; dealing with pupils' parents and their relationships with new colleagues in the school.

Using ICT in school

New teachers use of ICT can be seen in a wider context in which ICT has not had the expected impact on teaching and learning (e.g. Reynolds et al, 2003) in spite of widespread claims about its potential to benefit education (see, for example, Cox et al, 2003, Harrison et al, 2002, Somekh at al, 2006). There are several reasons why this might be the case (e.g. Scrimshaw, 2004). At the school level there are often difficulties with lack of access to machines, the location of machines and access to technical support. The school ethos might not be supportive to the use of ICT and ICT policies might be underdeveloped (Condie et al 2007). There may be a lack of training and pedagogical leadership or shortcomings in the training provided. At the individual level teachers may lack confidence in using IT; may not see ICT as fitting their general teaching approach (e.g. Becker 2000; Veen 1993) and may not see the use of ICT as making a difference (Higgins and Mosley 2001, Proctor et al 2006). Scrimshaw (2004) argues that the use of ICT is particularly challenging for teachers as it requires a change to a more learner centred pedagogy and those who have made more use of ICT have often been seen as having a commitment to a more social constructivist pedagogy (Webb and Cox 2004). Finally, there is a *wider view* on the use of ICT which stresses policy

confusion (e.g. Selwyn 1999); shortcomings in top down training (OFSTED 2001); and conflicting pressures upon the school timetable and wider school curriculum (Cuban 1993; Leach and Moon 2000; Somekh 2004). All the above factors are interconnected and Fragkouli and Hammond (2007) use a network analysis to show how structural and individual factors combine to result in a disappointing take up of ICT in one case study in Greece.

Using ICT in the first year of teaching

Recent reports have drawn attention to the importance of pre service training (OFSTED, 2001, Becta 2007) for new teachers, but overall there is a relatively sparse literature tying together the use of ICT and the first year of teaching.

In England, Slaouti and Burton (2007) tracked a cohort of 22 teachers of modern foreign languages and found that once *in situ*, new teachers continued to make personal use of ICT to support their preparation for teaching, with slightly fewer actually using ICT facilities *with* pupils. The most commonly used applications were word-processing, PowerPoint and the WWW. Only three had experience of interactive whiteboards. Most teachers were, nevertheless, firm in their belief that ICT was able to motivate pupils and to facilitate collaborative practice. Through interviews it was found that access; technical support; departmental and school policies; and induction opportunities for professional development were all significant in developing teachers' use of ICT. Personal factors played a part too, including awareness of self and beliefs about the role of ICT in teaching.

In Australia a survey of 33 early career science teachers, including 21 new teachers, were asked about their use of ICT (Dawson 2008). Different levels of preparation in, and confidence to, use ICT were uncovered. In the classroom ICT use was focused on word processing, Internet research and PowerPoint. Again it was suggested that beliefs about teaching; school culture; and level of ICT skills and confidence were all influential, with access as one of the key factors constraining ICT use.

In Sweden Andersson (2006) carried out a study of new teachers who were seen as showing particular interest in using ICT in pre service training. Around two thirds (14) of this sample went on to use ICT in their work including for networking, preparation and professional development. In the classroom they used the internet for information handling activities, tutorial style programmes and content free programmes. However a third of the sample became 'resistant' users of ICT. In a related study (Mukama and Andersson 2007) new teachers in Rwanda were keen to use ICT but needed more support in terms of training and, at a wider level, the rationale for using ICT needed to be made clearer.

The literature then provides a background to the issues but leaves important uncertainties: just how difficult is it to use ICT in school? Do beliefs about teaching remain relatively secure in a new environment? Do those new teachers who use ICT, and use ICT well, continue to do so?

Methodology

The aim of this study was to address the very broad question of what happens to student teachers who make very good use of ICT as they go into their first year of teaching. The research was conducted within a qualitative tradition (Miles and Huberman 1994), in this case exploring the perspectives of student teachers, triangulated against observation and documentary data.

Constructing the study

In the first part of this study (Hammond et al forthcoming) 62 student teachers (30 out of a primary cohort of 160 and 32 out of a secondary cohort of 260) had been identified by tutors and mentors in a local initial teacher education partnership as very good users of ICT. These teachers were broadly representative of the primary and secondary cohorts though contained a slightly higher proportion of males and a slightly lower proportion of ethnic minority student teachers. The mean age of the sample was just below that of the wider cohort (table 1).

Insert table 1 about here

From these 62 student teachers a convenience sample, albeit broadly representative, of 40 was constructed (24 in the secondary phase to reflect the different subject cohorts and 16 in the primary phase). 20 visits to school were made, with a further 20 interviews being conducted within the University.

In this phase of the study all 40 participants were contacted from September to December 2007 and 23 visits were made to observe a lesson with a follow up interview. Observations of pupil and teacher activity were made and recorded against a time line. Interviews followed a semi structured schedule covering the use of ICT in a lesson; comparisons with use of ICT during training; factors encouraging or discouraging the use of ICT; and further reflections on teaching and learning. During these interviews documents were examined including lesson plans and lesson observations which showed past use of ICT.

In January and February telephone or on line interviews were held with a further seven teachers. This left 10 teachers who had not taken part. One had not entered teaching; one was teaching abroad and difficult to contact; a further two had declined as they were working in schools in which fires had taken place and felt they had been unable to use ICT in the way they would have liked. The other six had agreed to take part but had not found the time to do so. Out of the 30 participants six were male and 24 female. They taught different subject and phases (table 2).

Insert table 2 about here

The interviews were transcribed and comments aggregated (using NVivo software) around themes of: personal use of ICT (2 sub themes); a particular lesson (11 sub themes); beliefs about teaching and learning (2 sub themes); factors which encourage / discourage the use of ICT (7 sub themes); expectations (5 themes). Data displays were constructed and used to support the descriptive reporting that follows in this paper. The data were then further contrasted and associations between the data explored.

Findings

These are organised into three main sections:

- Furthering knowledge and understanding of ICT

- How and why ICT is used

- What factors encourage / discourage teachers' use of ICT

Furthering knowledge and understanding of ICT

In the earlier part of the study it was found that student teachers had made widespread and frequent use of ICT before starting their training. During their training they regularly shared and exchanged resources using email and discussion forums. All used word processing for essay writing and PowerPoint for presentations. Nearly all felt that ICT was helpful, if not essential, in their past study and in their preparation for teaching. All but one had access to a computer with internet connections and email at home.

In this second phase of the study it was found that most continued to have similar levels of access to ICT at home and used ICT for personal use in the same way. Most now had little need to use ICT for essay writing or academic research but did continue to use ICT for professional purposes, for example exploring relevant materials for teaching over the

Internet; word processing reports, worksheets and lesson plans; producing Powerpoint or other presentations for pupils. Several explained how access to ICT had improved as they had been given a computer by the school; one primary teacher observed, "when I joined the staff here they gave me a laptop and I do all of my school planning on the school laptop. And I connect wirelessly at home and wirelessly when I come to school."

Most of these new teachers felt they were more confident in using ICT in school than during their training and gave examples showing greater knowledge of programmes, awareness of a greater range of programmes, and more knowledge of whom to contact in case of difficulty. They felt more confident to 'think on their feet' when encountering difficulties. They felt more in control of their environment and some were more willing to experiment, as one put it, "last year you were depending on the class teacher and you didn't want to do something to upset their technology. I have more ownership this year."   Only one in the sample felt she now had less knowledge of ICT, in particular she felt disadvantaged and deskilled by not having an Interactive WhiteBoard (IWB) in her classroom. A further six felt there had not been much difference in their knowledge and skills as 'they had always been good with ICT'.

How do these new teachers use ICT?

Student teachers were asked to discuss a lesson they had taught, or in 23 cases, a lesson that had been observed. They were not asked to present an exemplary lesson, rather the aim was to provide a snapshot of uses to which ICT had been put. Of lessons observed or discussed most took place in the teaching room that the teacher usually used. Where an ICT suite had been used it had been timetabled for an ICT lesson (3 cases primary and 2 secondary). Nearly all the lessons made use of the IWB to support whole class teaching. Teachers, and sometimes pupils, would write on the board during the lesson and in nearly all cases teachers had prepared material in advance. These resources might include text exercises (e.g. a fill in the missing word exercise); images (e.g. downloads from the internet or pictures of pupils' work from a previous lesson); sound files (e.g. a short clip of a song which pupils were to learn); small video presentations (e.g. clips of an advertisement to be discussed in a business studies lesson). There were several examples of short PowerPoint presentations being used. In two observed lessons pupils were later organised in a small group around the IWB and in many ways this was akin to giving a group their own machine. All lessons involved a settling of the class and a whole class presentation (including teacher question and answer with pupils) to be followed by further activity either at a machine or using paper and other resources. As in pre service training, the use of the IWB was central to the use of ICT.

However, as new teachers they remained committed to pupil use and might follow up board work with pupils' 'hands on' activity. Pupils were seen using software, including PowerPoint (4 examples); desktop publishing software (2); drawing and image packages (4); Internet search engines (2); spreadsheets (2); and the programming language Logo (1).

New teachers were asked about how the use of ICT impacted on planning. Reactions were mixed, with some spending as little as 15 minutes to put together material while one had spent three or four hours collating multimedia resources for a lesson. Overall most felt they were taking less time in planning this year than last though the demands on planning in general were intensified due to a heavier teaching work load (during their training they had tended to teach a 75 per cent timetable). Seven in particular felt the use of ICT added to their planning time, one spoke about taking photos of children's work for pupils to annotate later and how, 'it always takes much longer than you think'. In contrast 16 felt the use of ICT did not add to planning time and a further two teachers felt it saved time. Nearly everyone who discussed this issue felt that their use of ICT was taking less time to plan than last year because they were more confident in what they were doing; they knew their classes better; and often they had existing material to use. Three noted that they were more willing to adopt available materials, as one secondary teacher put it, "it takes less time because I am probably creating less things myself and using the things that are generated by other people."

The rationale for using ICT: the wider picture

Teachers were asked about their rationale for using ICT in a particular lesson. This was explored in three ways: rationale for using ICT, pupil reactions, and ideas about good teaching. The key point, as with findings from the previous year, was they felt the use of ICT helped them gain pupils' attention (11 responses). As one primary teacher put it, "because their behaviour is ten times better when we are on computers and they really enjoy using them." One reason to account for this was that ICT appealed to those with more interest in visual images: "it keeps children engaged if they can have something to look at." A further seven referred specifically to the use of images, animations and video clips as a support for explaining and modelling in a lesson. For example, one secondary teacher felt, "I find that the children will remember more easily what they need to do and also some of the children their reading skills are not so good and their listening skills might not be so good, so the visual is really necessary for them to understand." The five references to labour saving were associated with easy storage of electronic resources and access to those resources. Inside the lesson one teacher explained, "ICT saves time and you do less writing on the board. And the

less time you write on the board the less time you have your back to the class. And that helps things to move more smoothly." Access to past work saved time when planning. There was a great deal of consistency in the rationale for using ICT between the two studies (table 3). (Note here two categories, the use of video clips and storage, have been conflated with, respectively, use of images, animation and multi media and labour saving / storage to better represent participant responses in the second part of the study).

Insert table 3 about here

Participants felt that pupil reactions to the use of ICT had been positive with 12 of the observed teachers feeling strongly that pupils were more enthusiastic and more interested. One primary teacher put it that, "they were enthusiastic and you could see it from the fact that when I asked volunteers to come in front to use the IWB everyone's hand went up" and a secondary teacher explained that, "the pupils enjoy the use of ICT as it helps with their understanding. They are able to answer questions on topics covered and it means we can go backwards to retrace topics if pupils have not clearly understood." They further felt that there was greater interactivity inside a lesson. Only three negative comments about the use of ICT in the lesson were noted. One secondary teacher noted that, "it did not appeal to everyone" and a primary colleague felt, "they (the pupils) got overexcited and the class was difficult to settle."

This positive evaluation of the use of ICT was seen in a later question that related to how an observed lesson would have been different without ICT. Nearly all felt it would have been substantially different and mentioned, in order of frequency of occurrence, that: it would have been more didactic; lacked images, moving images or sound; meant pupils could not so easily have amended their work; work would have been less clear to pupils; and there would have been more waiting while the teacher wrote at the board. None could think of ways in which an observed lesson would have been better without ICT but some did wonder if it might have been quicker to plan.

 These views on the use of ICT should be seen in relation to what teachers felt was important in a good lesson (table 4) in which ideas of clarity and of pupil involvement were key. Pupils needed to be clear as to what they were learning and progression should be clear to all. However, there was also a commitment to a more learner centred approach taking in ideas of engagement; interactivity; variety; motivation and relevance. As one secondary teacher explained, "if they are doing some independent learning and learning creatively, that's a good lesson" and another added "the perfect lesson is when students come out having done

something interesting." These were strongly resonant with responses during the pre service year though in this first year of teaching there were more references to class management. One primary teacher felt, "the thing in this school is trying to keep on top of behaviour. Quite a lot of the time it is classroom management rather than hitting all of the points." This may because as new teachers they were now solely responsible for their classes and realised that this was a more permanent relationship, while in some cases it was more simply a response to working in a more challenging environment. Several made the point that they were making lessons less creative this year due to time pressures.

Insert table 4 about here

What factors encourage / discourage new teachers' use of ICT

Induction arrangements at school were discussed as a potential influence on the use of ICT. In the majority of cases (21 against 9) new teachers had been shown available hardware and software and explained arrangements for booking machines and access to technical help. Some teachers were given resources including lap tops and memory sticks with templates for interactive games and activities. In some schools on line record keeping was demanded. This kind of induction was valuable and even throwaway suggestions could have important outcomes; one secondary teacher noted, "I had a meeting with my head of department and I said that I wanted to use ICT more and he said to speak to some teachers. So I went off and talked to teachers who use it and they showed me some useful things." Of teachers discussing induction targets 12 out of 20 felt they would not be assessed on their use of ICT and seven thought it likely. Were schools aware of these teachers' strengths in using ICT? 17 out of the 24 believed so and three felt they had already been seen as helpful resources for other teachers, one explained, "if people have questions they will ask and I am quite happy to answer them!" Another had been asked to assist in the development of the school web site.

Most new teachers (21) were aware of the school's ICT policy. In most cases this referred to a general encouragement to use ICT and arrangements for booking rooms; support and 'E-safety'. One primary school had a policy on planning, "the head has insisted that all the planning should be done electronically on the network. Last year there was a website and you had to submit the planning by Sunday evening 7 o clock." A further six participants felt it likely that there were policies but could not remember having seen or discussed specific documents and a further three felt an ICT policy was 'unlikely'.

In discussion of school expectations 10 participants felt that there were quite high expectations that ICT was used, this was generally because there was special equipment such as cameras, and digital sound recorders available, a special technology status or because there was a lot of online administration to do. As one primary teacher put it, "if you don't use ICT then they kind of wonder why." A further eight felt that ICT use was expected but this was not a priority - "they encourage it but they don't really push it." In five cases participants felt that there were low expectations and generally this was related to lack of equipment, one primary teacher explained, "there are no expectations because if we don't have the stuff they know that they cannot have expectations that we use it." However even when there were high expectations regarding the use of ICT there was rarely specific reference in a scheme of work or guidance on using ICT for a particular purpose.

Most participants felt that they used ICT more than other teachers in their schools and suggested this may have been because they were younger, had been more recently trained, were more confident or perhaps 'still enthusiastic'. It was further felt that some staff could not take advantage of the pedagogic potential, "some of them don't use it that often because there is quite a lot of traditional teaching, which is textbook based or class discussion based." Notwithstanding these comments nearly half of those who discussed the issue (11 out of 20) could point to someone who had helped them or been a 'role model' to develop their use of ICT. As one secondary teacher put it, "there are people who use ICT in very interesting ways. It's the science department that uses it an awful lot they have some nice animations and some nice stuff that they have built up because they have people that use it." However others had not seen good examples of ICT either because it was not there to see or they had lacked the opportunity to find out. One secondary teacher noted, "we don't go to watch other people teach, so I don't know what other teachers are doing." Not surprisingly this was seen as having a negative impact on development, as another noted, "it has affected my practice because I want someone to bounce ideas from, to share some of my ideas with them as well as to learn from others because I am a new teacher."

A key element for all new teachers was the level of resources around them. 17 felt access to equipment was better than in the previous year and "better than most people realise". In contrast six talked about access as being limited and found it very difficult to develop their use of ICT: "we don't have the money to spend on brand new equipment. The printer has died and we only have one printer in for the whole school and we don't have the budget to buy one". A further seven felt the level of resource was about the same as last year.

Their commitment to using ICT was underpinned in all cases by the belief described earlier that this would impact positively on their teaching and on pupil learning. They were also asked to consider the specific factors encouraging them to use ICT in their new school. Here they referred back to the influence of their pre service training alongside the encouragement they encountered from their new colleagues (table 5). A further key factor was that better access had enabled them to use ICT, this included six who had been given their own lap tops.

Insert table 5 about here

With some, the discussion led on to the related issue of what, or who, had influenced them in using ICT well. 12 out of the 19 highlighted the impact of their pre service training and referred to the input of training sessions at university and to their school based mentors in equal measure.

The factors which discouraged their use of ICT were clear (table 6). Access was the key issue, for example, difficulties in booking resources, machines not working and absence of technical support and of software. The next most important was shortage of time: "the only factor is really time. I haven't got enough time like I had on training to sit down and do a new resource".

Insert table 6 about here

Considered overall most (19) found it easier to use ICT this year, as such use had become routine in planning and they felt more empowered to use whatever resources they could find in the classroom. However for a minority (7) using ICT had become more difficult and for a further four it felt the same.

Discussion

This paper posed the question what happens to new teachers who made very good use of ICT during their training as they enter the first year of teaching. The answer can be summarised as they continue to make use of ICT; they use it in broadly similarly ways; and they encounter different conditions in which to develop that use. A minority of teachers were fortunate to be given their own lap top and associated peripherals and easy access to machines; to be inducted into policies and procedures for use of ICT; have their own skills recognised and encouraged to share these with other teachers; and to be invited to observe other teachers modelling good use of ICT. The consequences for this were perceived as greater knowledge of ICT; greater confidence in using ICT; more routine use of ICT and

more opportunities for both whole class interaction and for pupil centred work. In contrast a few teachers encountered limited resources in school; were not inducted into policies and practices; would not be asked to contribute to developing ICT. The consequences here were lost opportunities for engagement of pupils and the need to seek compensation in other aspects of teaching in their new school. The majority of new teachers had more positive than negative experiences but there were very few examples when access, induction and wider support were all very good.

It seems clear that these new teachers' use of ICT can be attributable to several factors:

- access to ICT;

- a perception that ICT assisted them meet their aims as teachers and provided opportunities not otherwise available;

- an inclination to use ICT based on previous personal and academic use;

- resourcefulness in overcoming constraints and identifying opportunities;

- pre service training involving the direct modelling from tutors at university and mentors in school alongside peer support ;

- general support and encouragement for using ICT in school.

Within this list access to ICT is key but so too is the belief that ICT can provide support for good teaching. Learning to teach becomes once again seen as an interplay of the individual, with past experiences and personal beliefs about teaching, and the environment, the people and the tools around him or her (Slaouti and Burton 2007). In terms of the literature quoted earlier this small study offers some support for what might be called a revisionist view of the first year of teaching. It suggests that pre service training can be more influential than often thought and carries over at least into the first months year of teaching (as argued for example by Condie et al 2007). It also suggests that new teachers do develop their teaching (Hobson 2008) and, in this case, their use of ICT. It also suggests a re-visioning or at least a reconsideration of the use of ICT in two ways. Firstly, it highlights the rapidly changing provision of ICT. For example, in the Slaouti and Burton study (2007) only three new teachers used IWBs, in contrast in this later study nearly all had regular access to IWB. Secondly, it shows the IWB has become central to new teachers' use of ICT and this throws open the relationship of ICT to more learner centred teaching as reported in other studies (e.g. Scrimshaw 2004; Cox 2003). In part some kind of association is still made as these new

teachers saw ICT as offering opportunities for interactivity with children in whole class teaching and, later, for pupils' independent working. They could contrast their approach to teaching with more didactic 'traditional teacher exposition'. However, there remained a commitment to whole class direction and modelling and their beliefs about pedagogy could be easily matched to official guidance (DCFS 2004) rather than to an earlier tradition of pupil centred curriculum reform (e.g. Stenhouse 1968). They did not see ICT as the harbinger of radical reform as once argued, for example, by Papert (1980) and his supporters. Of course, they may have felt a tension between their personal commitment to ICT and the practices of their colleagues but they did not experience 'reality shock' and, for better or worse, they offer a less romanticised study of learning to teach and a less 'heroic' view of the role of ICT.

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	Mean age (years)	percentage ethnic minority	percentage male
Secondary Sample	25.9	13.80	34.50
Secondary Cohort	26.8	18.70	31.30
Primary Sample	26.2	6.50	12.90
Primary Cohort	27.9	7.90	9.70

Table 1: comparison of the sample to the cohort as a whole

Secondary subjects / primary phase	Pre service interview	Observation visits	Telephone or online interview	Total
Economics and business studies	4	2	1	3
English	3	2		2
History	2	2		2
ICT	2	1	1	2
Mathematics	3	2		2
MFL	1	1		1
Science	7	3	2	5
Primary	18	10	3	13
Total	40	23	7	30

Table 2: breakdown of sample by subject (secondary student teachers) and age phase (primary student teachers).

Rationale for using ICT	As new teachers (N=30)	As student teachers (N=40)
Gains attention of pupils	14	13
Use of images, animation and multi media	8	11
Hands-on and more independent	6	6
Labour saving/storage	5	9
Access to up-to date sources	4	4
Editable	2	3
Helps pupil share work	2	3
Learning about ICT	2	3
The use of video clips		5
Storage		4

Table 3: Rationale for teaching using ICT (more than one rationale offered by some participants)

Features of a good lesson	As new teachers (N=30)	As student teachers (N=40)
Clarity	8	19
Interactivity/ involvement learning	7	14
Well - managed class	5	
Variety	5	7
Motivation/ interest/enjoyment	5	12
Use of ICT	3	3
Engagement and relevance	3	11
Differentiation	3	11
Autonomy (pupil)	3	7
Starter activity	1	1
Modelling	1	1

Table 4: Frequency with which different features of a good lesson were mentioned (more than one feature offered by some participants)

Factors encouraging use of ICT	As new teachers (N=30)	As student teachers (N=40)
My PGCE experience/ tutors and peer group	13	23
Access to machines	11	39
Encouraged by others in this school and mentors	10	24
My ICT knowledge / personal experience	7	27
It is part of the curriculum/ timetabled to use it	5	7
Time	3	18
Meeting assessment standards	1	4

Table 5: Responses to the question what has encouraged you to use ICT (more than one factor offered by participants)

Factors discouraging use of ICT	As new teachers (N=30)
Access to hardware or software difficult	19
Time pressure	7
Mentors and other teachers in school are not encouraging	6
Lack of confidence with computers	1

Table 6: Responses to the question what has discouraged your use of ICT (more than one factor offered by participants)