Mary Welsh,  
University of Strathclyde  


**Classroom Use of ICT by Early Career Primary Teachers in Scotland**

_**Keywords:** ICT; Teaching and learning; CPD for teachers._

**Abstract**

Initial teacher education (ITE) and the continuing professional development (CPD) of early career teachers are in a period of transition. Evidence from research has reported that aspirations to improve attainment in UK schools, through effective use of ICT, have not been met (Condie _et al._, 2005; Condie _et al._, 2007). New approaches to pre- and in-service teacher professional development have been advocated as it is expected that ICT will have a considerable role to play in supporting the educational development of citizens of the Information Society and that it is vital that teachers, at all levels, are equipped with the necessary knowledge, skills and understanding to support students of all ages and in all societies.

This paper reports on the second phase of a PhD research project whose main aim is to explore factors that impact on a teacher’s use of ICT to support teaching and learning, in the primary classroom, during the first two years of his/her career.

Research about barriers to use of ICT to support teaching and learning by experienced, in-service teachers has identified a range of first- and second-order barriers which have had a negative impact on ICT use in the classroom. First-order factors are those commonly related to ICT provision and technical support, whereas second-order factors, that operate at both school and teacher level, are related to individual teachers’ beliefs about the importance of ICT use, personal ICT competence, lack of time and appropriate training.

This paper will explore whether teachers in their first year of teaching face similar barriers as they begin their teaching careers and whether the needs of new teachers have been met in pre-and in-service ICT training. The following questions underpinned exploration of data from this phase of the project:

1. Do Scottish primary teachers use ICT to support teaching and learning in the classroom during the first two years of their career?
2. What sorts of ICT resources are used by these teachers?
3. Do new teachers, who use ICT in the classroom, meet the same barriers as their more experienced colleagues and, if so, how do they respond?

Preliminary findings indicate that, contrary to ICT use reported by more experienced teachers, new teachers appear to believe that ICT is a tool to be embedded in regular, everyday classroom practice. Innovative use of interactive whiteboards and digital cameras, to support teaching and learning, across all curricular areas, is reported.
In common with more experienced teachers, the internet is used for research purposes however some new teachers, and their classes, make use of Web 2.0 technologies to a greater extent than has been reported previously. This allows them to interact with others on a more personal level than was possible before. Data from the semi-structured interviews highlights that provision of CPD opportunities in ICT is still variable and that there exists a need for more CPD opportunities targeted to the needs of new teachers.

The project has adopted a mixed method approach to data collection, analysis and interpretation, with both quantitative and qualitative data being gathered to create a “thick description” of student and new teachers’ experiences.

The first phase of the project utilized quantitative data from 364 survey questionnaires, completed by graduate students undertaking the Professional Graduate Diploma in Primary Education (PGDE (P)), at the University of Strathclyde, during the academic year 2006-7. Results from this exercise were used to formulate questions for semi-structured interviews conducted with eighteen probationary teachers in eight local authorities throughout Scotland in May – July 2008. All interviewees were former participants in the Strathclyde Laptop Initiative (SLI), a government-supported initiative that requires PGDE (P) students, at the University of Strathclyde, to use laptop computers in order to participate fully in the course through a process of blended learning.

The new teachers agreed to be interviewed about their use of ICT in the classroom at the end of each of their first two years of teaching, i.e. during the periods May to July 2008 and 2009. Following transcription, qualitative data from the first tranche of semi-structured interviews was subjected to content analysis and use of a grounded theory approach facilitated the identification of common themes that were utilized to formulate questions for the next tranche of semi-structured interviews. It is postulated that responses to the second round of semi-structured interviews will support further exploration of the aims of the PhD project and provide more insight into the classroom experiences of new teachers as they wrestle with the demands of entering the teaching profession in Scotland during a period of immense change. This analysis will facilitate exploration also of future CPD needs of these early career teachers and may contribute to the formulation of policy regarding the same.

Introduction
As stated in the abstract above, this paper reports on the first stage of a PhD study that examines new primary teachers’ use of ICT to support teaching and learning in the classroom during the first two years of their career. It will offer an account of the experiences of 18 probationer teachers as they face the myriad challenges and opportunities posed by entrance into the profession during a period of profound educational change. In particular the paper will examine how these teachers have attempted to utilise information and communications technology (ICT) to support their teaching and pupils’ learning, will identify barriers to effective use of ICT faced by the teachers and will attempt to offer some recommendations as to how these barriers may be addressed.
The Professional Development of Teachers in Scotland

The publication, in January 2001, of “A Teaching Profession for the 21st Century” (SEED, 2001), signalled the beginning of a new era with regards to the “professional conditions of service and pay for teachers” (SEED, 2001, p. 3). The document, which is commonly referred to as “The McCrone Report,” was the result of an eight month long period of consultation between “employers, teacher representatives and The Scottish Executive” (SEED, 2001, p. 3) and aimed to establish conditions of service designed to meet the professional needs of teachers as they prepare their pupils for life as 21st century citizens. Within the agreement was the commitment that new teachers entering the profession should be

“… guaranteed a one-year training contract with a maximum class commitment of 0.7 FTE, the remaining time available for professional development. Probation will be limited to one year and permanent employment restricted to fully registered teachers …” (SEED, 2001, p. 18).

During the first year of teaching new teachers (probationers) are supported by a member of staff (called a mentor or supporter) who has been nominated for this role by the head teacher of the school in which the new teacher has been placed. In common with fully qualified teachers in service, probationer teachers and are required to maintain a professional development portfolio. This portfolio is submitted to the General Teaching Council for Scotland (CTCS) at the end of the first year of teaching as evidence that the new teacher has attained the Standard for Full Registration (SFR) and may now be considered to be a qualified teacher.

The teachers who participated in this project were all graduates who had gained a teaching qualification by studying for a Professional Graduate Diploma in Primary Education (PGDE (P)) at a university in the central belt of Scotland. Fifteen of the teachers had been full-time on campus students, one teacher had studied part-time on campus over two years and the final two had studied full-time at a distant campus where students were taught by visiting university staff supplemented by trained local staff. As students the teachers had participated also in an initiative that provided all students on the course with a laptop computer to support their studies. The laptops could be purchased outright or borrowed for one year on payment of a small, returnable fee. The laptops were furnished with Microsoft Office and a range of relevant educational software. Students who already owned laptops could download the educational software for the duration of the course, again on payment of a small fee. This initiative was the result of a partnership between the Scottish government and a large international computer company.

The average age of the teachers who participated in the PhD project reported here was 35.4 years (range 23 to 47 years), 4 (22.2%) were male and 14 (77.8%) female. Nationally 9.4% (N = 175) of probationer primary teachers of both genders were in the age range 31 to 35, 8.9% (N = 151) were female and 1.4% (N = 24) male (GTCS, 2008).

Geographically, the probationer teachers were appointed to schools in eight education authorities throughout Scotland. The schools were located in a mixture of rural,
suburban and urban areas and, in terms of socio-economic status, were self-classified by the teachers as ranging from being located in very deprived to very affluent areas.

This paper will explore whether teachers in their first year of teaching face barriers similar to those faced by more experienced colleagues and whether the needs of new teachers have been met during in-service ICT training. The following questions underpinned exploration of data from this phase of the project:

1. Do Scottish primary teachers use ICT to support teaching and learning in the classroom during the first two years of their career?
2. What sorts of ICT resources are used by these teachers?
3. Do new teachers, who use ICT in the classroom, meet the same barriers as their more experienced colleagues and, if so, how do they respond?

Literature Review

Barriers to use of ICT in the classroom

Research into teachers’ use of ICT in the classroom has identified a range of barriers that may be categorised as being external or internal barriers. First-order or external barriers may result from government and local authority policies and are generally related to ICT provision and technical support such as the following:

- Lack of ICT equipment per se (Pelgrum, 2001);
- Lack of reliable, appropriate, up-to-date equipment (Preston et al., 2000; Butler & Sellbom, 2002; Cuban, et al., 2001);
- Lack of access to ICT resulting from having to share equipment or from the deployment of ICT resources in ICT suites or equivalent (Fabry & Higgs, 1997; Cuban et al., 2001);
- Lack of appropriate, differentiated ICT training (Veen, 1993; VanFossen, 1999).

Second-order or internal barriers are centred on the teachers’ personal experiences and operate at teacher and school level. They may encompass teachers’ attitudes to ICT use in the classroom, personal ICT competence, lack of time and to teachers’ perceptions of whether they receive ICT training appropriate to their needs. All of these barriers pose threats to the successful embedding of ICT in classroom practice and include:

- Lack of time for personal ICT training and for personal exploration of the benefits of ICT (Fabry & Higgs, 1997);
- Lack of time for preparation of ICT resources (Preston et al., 2000);
- Lack of confidence in using ICT and resultant fear of embarrassment when difficulties arise (Pelgrum, 2001; Russell and Bradley, 1997);
- Negative prior experiences of ICT use and lack of perception that technology may enhance learning (Yuen & Ma, 2002; Preston et al., 2000);
- Classroom management issues resulting from poor pupil-to-computer ratios (Dreneyianni & Selwood, 1998; Cox et al., 1999).

Methodology

The project adopted a mixed method approach to data collection and analysis.
Qualitative research methods may be used when the researcher aims to provide an in-depth description of a particular context. Merten (2005) describes qualitative research thus:

“… qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them… (p. 229).

Within the qualitative paradigm a large variety of empirical approaches are accepted, one of which is the use of semi-structured interviews. The reasons behind the selection of this method of data collection in the project were rooted in the researcher’s philosophical beliefs and in purely pragmatic reasons. Patton (2002), details three conditions for the selection of qualitative methods. One of these is that the approach is particularly suited to investigations carried out in educational settings. The strategy adopted, grounded theory, allows for

**Semi-structured interviews**

**Preparation**

During the first phase, which occurred when the participants were undertaking the PGDE (P), the student teachers completed two online survey questionnaires at mid- and end-points of the course. The questionnaires sought responses to both open and closed questions. Whereas responses to closed questions provided quantitative data that was later subjected to descriptive statistical analysis using SPSS, responses to open questions provided qualitative data that was analysed to enhance understanding of the particular experiences of the students and to support the identification of common themes and issues. Engagement with relevant literature underpinned the entire process and supported the formulation of questions to be utilised in semi-structured interviews to be carried out in phases two and three of the project, that is, at the end of years one and two of teaching.

The proposed interview questions were sampled by eight staff in a primary school in a suburban commuter town located in one of the local authority areas and some minor revisions were made.

As stated previously, all of the interviewees had been students at the same ITE institution who had volunteered to be tracked by the researcher for a two-year period following completion of the PGDE (P) course. Whilst it is recognised that use of volunteers, rather than random selection of participants, may result in some distortion of the data, this approach was deemed appropriate due to the exigencies of gaining access to the teachers when they were in-service.

Following the allocation of participating teachers to specific education authorities for the probationary year, a letter was written to each authority seeking permission to maintain contact with these teachers for the first two years of their career and two interview them annually. All of the authorities readily agreed to this.

Although the teachers were guaranteed employment for the whole of the first year, during the second year of teaching the majority of teachers would be forced join the supply list, i.e. they would have fixed-term posts in schools seeking teachers to
provide cover for staff who are absent due to illness or attendance at continuing professional development (CPD) activities. It was fortunate that all of the teachers sought employment in the same authorities during the second year of teaching.

**Implementation**

Each new teacher participated in a semi-structured interview, lasting approximately one hour, during the period May to July 2008. The interviews took place at a time and location of the teacher’s choice and thirteen of the eighteen interviews were carried out in the teacher’s school during, or after, the school day. Some teachers preferred to be interviewed during the summer break and the location of these interviews varied.

All interviews were recorded using a digital voice recorder (DVR) and each interview comprised eight major questions designed to ascertain the teachers’ views on various aspects of ICT use in the primary classroom. Where necessary, minor questions were used to prompt exploration of comments made in response to major questions. In the interests of consistency the same major and minor questions were posed to all and a similar approach was adopted. The researcher took brief notes to accompany each recorded interview. Audio files resulting from each interview were transcribed and subjected to content analysis.

The approach used was based on that outlined by Robson (2002, p. 277):

1. Introduction – one question seeking demographic details and offering reassurance about the confidentiality of all response;
2. ‘Warm-up’ – two questions inviting the teachers to describe the school, class and him/herself as a teacher;
3. Main body of interview – four questions centred on investigating the teachers’ attitudes to ICT use in the classroom;
4. ‘Cool-off’ – one question about whether the teacher felt confident about using ICT in the classroom, CPD opportunities and his/her future plans;
5. Closure – thanking the teacher and saying goodbye. Comments made after the DVR was switched off were recorded in the interviewer’s notebook immediately after the interview.

**Data analysis**

Preliminary close reading of interview transcripts allowed initial open coding to be carried out. Categories identified as a result of this process were then subjected to basic axial coding in an attempt to clarify the reasons behind particular instances of the category and to allow initial conclusions to be formed. This approach is a common feature of grounded theory approaches.

Analysis of data from the interviews is ongoing so it is not possible to discuss responses to all questions at this point, instead the discussion will focus on responses to three questions from the interview schedule:

1. Do you use ICT to support your teaching in the classroom?
2. Do you think ICT helps children to learn?
3. Have you felt confident about using ICT in the classroom this year?
When the teachers were asked if they used ICT to support their teaching in the classroom all but one (94.4%) of the teachers replied in the affirmative, however 5 teachers (5.6 %) were able only to use ICT infrequently. The teacher who was unable to use ICT in the classroom at all used it for lesson preparation. As a result of illness during the PGDE (P) course, one teacher was unable to be allocated a probationer post during the year in question and was on the supply list. Among the reasons given for infrequent use of ICT in the classroom for teaching were:

“… I don’t use it in lessons. I don’t use it in lessons because of restrictions within the school. I would use it to prepare personally … but as regards to using it to, using it so that the children are actually sitting with equipment or using different equipment I don’t really use it…” (Colin).

“… I do whenever I can. There’s two barriers. The main barrier is there’s no log on codes for supply teachers … Even though it [the lesson activity] had been planned by the teacher I couldn’t do that because I couldn’t get the resources [from the shared drive] …(Anne).

Use of the Internet and preparations for use of Glow, the Scottish Schools Digital Network, were recorded also. All of the teachers considered ICT use to be important and all used the Internet for lesson preparation and personal research, fifteen were able to use the Internet in their own classrooms and two used it in scheduled lessons in ICT suites. The remaining teacher was unable to use the Internet for teaching as the class visited the ICT suite (the only place where the internet was installed) during the part of the week when the other teacher taught the class. Only 4 (22.2%) of the teachers were able to access Glow. The main reason given for this was that local authorities did not provide probationer teachers with Glow logons.

Presentation of results and discussion of findings

Use of ICT to support classroom teaching and learning

Since the year 2000 Her Majesty’s Inspectors of Education (HMIE) in Scotland have monitored the impact of ICT in Scottish schools. Responses to interview questions were compared with the most recent report, published in 2005 (Condie et al., 2005). Whilst it is recognised that the interviewees may use some hardware unavailable in 2005, use of the 2005 data allows some comparisons to be made. Further research reported by Condie et al., in 2007, has identified a change in use of ICT in teaching and learning in recent years:

“… current use can be broadly described as characterised by collaborative, investigative and problem-solving activities designed to develop increasingly independent learners who are confident users of ICT exploring and finding out for themselves, with great interaction compared to non-ICT lessons…” (Condie et al., 2007, p. 21).

The teachers were invited to state what sort of hardware and software they and their pupils used in the classroom and what sort of activities were undertaken. Activities were categorised in a manner similar to those in the 2005 HMIE report (Condie et al., 2005, p. 142) and compared with percentage responses to the category “Already well established”.

7
Table 1 Classroom activities

<table>
<thead>
<tr>
<th>In my class pupils use a computer to …</th>
<th>2005 Report</th>
<th>2008 interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>write essays, poems or reports</td>
<td>87.1%</td>
<td>77.8%</td>
</tr>
<tr>
<td>make a newspaper or newsletter</td>
<td>53.8%</td>
<td>5.6%</td>
</tr>
<tr>
<td>work with databases</td>
<td>37.6%</td>
<td>11.1%</td>
</tr>
<tr>
<td>search for information on a CD-ROM</td>
<td>77.4%</td>
<td>0%</td>
</tr>
<tr>
<td>work with spreadsheets</td>
<td>35.5%</td>
<td>16.7%</td>
</tr>
<tr>
<td>make drawings using a graphics package</td>
<td>69.9%</td>
<td>22.2%</td>
</tr>
<tr>
<td>do their own programming</td>
<td>4.3%</td>
<td>0%</td>
</tr>
<tr>
<td>control models or toys</td>
<td>10.8%</td>
<td>33.3%</td>
</tr>
<tr>
<td>run simulations</td>
<td>5.4%</td>
<td>1.0%</td>
</tr>
<tr>
<td>play problem solving games</td>
<td>50.5%</td>
<td>61.1%</td>
</tr>
<tr>
<td>make animations</td>
<td>11.8%</td>
<td>11.1%</td>
</tr>
<tr>
<td>display or send digital photographs</td>
<td>28.8%</td>
<td>55.6%</td>
</tr>
<tr>
<td>create multimedia presentations</td>
<td>36.6%</td>
<td>44.4%</td>
</tr>
<tr>
<td>use authoring software</td>
<td>7.5%</td>
<td>0%</td>
</tr>
<tr>
<td>link up to a music keyboard</td>
<td>1.1%</td>
<td>0%</td>
</tr>
<tr>
<td>work with a sensor to capture data to feed into the computer</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>search for information on the Web</td>
<td>83.9%</td>
<td>66.7%</td>
</tr>
<tr>
<td>add information to the school Web site</td>
<td>11.8%</td>
<td>0.0%</td>
</tr>
<tr>
<td>send e-mails to pupils in other schools</td>
<td>20.4%</td>
<td>5.6%</td>
</tr>
<tr>
<td>send e-mails to people outside school</td>
<td>19.4%</td>
<td>5.6%</td>
</tr>
<tr>
<td>video-conference with other schools</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>work with a virtual learning environment</td>
<td>1.1%</td>
<td>60.0%</td>
</tr>
<tr>
<td>make/edit movies</td>
<td>0%</td>
<td>27.8%</td>
</tr>
<tr>
<td>make maps using GIS</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>examine specimens using a digital microscope*</td>
<td>0%</td>
<td>5.6%</td>
</tr>
<tr>
<td>play “Brain-Training” games using a Nintendo DS*</td>
<td>0%</td>
<td>5.6%</td>
</tr>
<tr>
<td>vote using use an electronic voting tool/PRU*</td>
<td>0%</td>
<td>11.1%</td>
</tr>
<tr>
<td>select responses using an electronic Dance Mat*</td>
<td>0%</td>
<td>5.6%</td>
</tr>
<tr>
<td>create Podcasts*</td>
<td>0%</td>
<td>5.6%</td>
</tr>
<tr>
<td>create Blogs*</td>
<td>0%</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

Categories marked * refer to technologies listed by project interviewees only.

Whilst the data from interviewees represents only a small sample of the probationer teaching population and the 2005 data does not provide details of the career stages of participating teachers, some trends may be observed. Use of the computer for basic word processing tasks remains by far the most common use of classroom computers. Use of commercially produced and local authority created virtual learning
environments has increased enormously. Their use by probationer teachers was often linked to activities carried out using interactive whiteboards, particularly for problem-solving activities. Use of computers for making newspapers or newsletters has decreased, however more pupils have created movies or taken digital still photos to create films/displays that provide evidence of their attainments and/or allow their creative abilities to be demonstrated. Evidence from the interviews suggested that use of e-mail and video-conferencing was often restricted due to local authority management systems, although there was a belief among interviewees that the introduction of “Glow” would facilitate increased communication between pupils and schools throughout Scotland. Searching for information using a CD-ROM was mentioned only once, with the Internet being the preferred tool for searching for information, despite concerns about the levels of pupils’ information literacy skills.

Lack of access to ICT equipment per se was not a major issue with 17 (94.4%) of the teachers reporting access to at least one networked computer in their classroom and expressing contentment with the equipment on offer. However 6 (33.3%) of the teachers reported that they preferred to use their own digital still cameras in the classroom as those provided by the school were of lesser quality. Four teachers (22.2%) prepared all ICT teaching materials at home, storing them on a USB Flash drive for use in school. Sharing of ICT resources, including interactive whiteboards, or the deployment of the same, caused difficulties for 14 (77.7%) interviewees. Although 16 (88.8%) reported using interactive whiteboards, 2 (11.1%) of these were shared with other classes and thus hindered access.

**ICT helps children learn**

Negative prior experiences of ICT use did not appear to impact on the probationer teachers’ use of ICT and it was clear from responses that the probationer teachers shared the perception that ICT may enhance learning.

The second question discussed here, “Do you think ICT helps children learn?” sought to uncover details of the teacher’s beliefs about, and attitudes to, the impact of ICT on children’s learning. 14 (77.8%) of the interviewees answered in the affirmative, 2 (11.1%) replied “Not necessarily” and 2 (11.1%) offered no response. Reasons given for replying “Yes” centred mainly on the impact of ICT on pupil engagement and motivation but also included comments referring to personalisation and choice. All interviewees commented on the role of ICT as an essential element of the pupils’ everyday life and future. One class used email to participate in the consultation process prior to the introduction of a Scottish Parliament Conservation Bill. Comments such as those below were common:

“… Yeah, most, definitely … They [the pupils] use it as a means or research, of enhancing what they’ve already learned. They use it as a means of teaching others, as a teaching tool themselves to impart their information to other people, so they’re almost doing the whole learning process from start to finish and then passing it on to someone else… (Jane).

“… Em, I think they could probably learn without it but I think to leave it out would be very wrong because they’re going to need it when they leave school. I think we would be doing them a terrible injustice not involving them and
immersing them in it as much as we can. Plus it’s what they’re used to out of school, it’s their life, and they’re totally unphased by it… (Kate).

“Yes, undoubtedly and I think … I think for a start 90% of children totally engage in ICT. As soon as ICT comes into, becomes part of their learning they engage in away that maybe they don’t on a piece of paper. I think a lot of them are so ICT familiar that it’s something that doesn’t scare them and I think they are quite happy to make mistakes and to learn from mistakes … I think it gives them a real sense of self, it builds self-esteem really …” (Tom).

“Definitely and I think they need to learn using ICT…” (Pam).

**Teachers’ confidence regarding the use of ICT in the classroom**

A report by HMIE in 2007, “Improving Scottish Education; ICT in Learning and Teaching”, detailed a number of conditions that should be in place in Scottish schools in order to transform learning through ICT. Two of these were:

“… high levels of confidence and competence in, and commitment to the use of ICT by teaching staff…” (HMIE, 2007, p. 57); and

“… availability of, easy access to, and effective use of learning and teaching materials that exploit the strengths of ICT…” (HMIE, 2007, p. 57)

The final question explored the teachers’ perceptions of their personal confidence in using ICT in the classroom and explored the types of CPD opportunities offered to them during this first year. In contrast with more experienced colleagues, the probationer teachers did not report a lack of confidence and fear of embarrassment if things went wrong when using ICT. There was a general perception that the teachers and pupils were involved in a joint enterprise when using ICT.

Despite two of the teachers describing themselves as “Luddites” the teachers exhibited generally high levels of ICT competence and 12 (75.0%) reported that they had received ICT training appropriate to their perceived needs. Probationers in four different authorities demonstrated considerable expertise:

- One interviewee had been invited to participate in a research project sponsored by Learning and Teaching Scotland (LTS) which investigated the use of Nintendo DS machines, equipped with Brain Training Software, to enhance the development of mental maths skills.
- Another interviewee and her pupils had created a DVD about their school that was shared with children in Holland and is to be posted on the LTS website as an example of good practice in internationalisation and citizenship.
- One more was invited by the local authority to deliver training in the use of digital video to enhance enterprise activities to staff on an in-service day.
- Finally, one interviewee borrowed animation equipment, including extra laptops, from the local authority and supported pupils in the creation of short
animated films that were screened for parents as part of an Oscars award ceremony.

**Conclusion and Recommendations**

Research carried out by Kennedy *et al.* (2008) on behalf of Learning and Teaching Scotland (LTS), the organisation responsible for curriculum development in Scotland, (LTS, 2008) identified, amongst others, a need for “… differentiated CPD opportunities…” and “… increased flexibility…” (Kennedy, *et al*., p. 44). The findings of this small project would seem to support this view.

Probationer teachers exhibited *some* of the concerns of more experienced teachers, most of which could be categorised as first-order barriers, e.g. lack of access to ICT equipment caused by sharing or deployment of ICT equipment; lack differentiated professional development opportunities. Differences in the experiences of probationer and experienced colleagues were more apparent in descriptions of second-order barriers, i.e. occurring at the level of the teachers’ personal experiences. Both experienced and probationer teachers reported lack of time to develop ICT skills and for the preparation of resources; despite favourable pupil to computer rations in most settings, they also concurred in expressing some concern regarding lack of access to equipment. The greatest differences occurred regarding confidence in using ICT and perceptions of embarrassment due to teachers’ lack of ICT skills or knowledge. Probationer teachers did not express concerns about these aspects. They were generally confident ICT users and were not embarrassed if ICT activities did not proceed as expected – there appeared to be a perception that this was regarded as an opportunity for teachers and pupils to work together to overcome difficulties. Their lack of negative classroom experiences also contributed to the creation of a belief that technology enhanced learning. Two major concerns expressed by probationer teachers was the concern that some local authorities, for reasons unknown, would not provide Glow logons to probationer teachers – a population who could be considered as possible leaders in the development of the Glow community. Another concern centred on their fears for the future. When the interviews were conducted only four out of eighteen probationers had secured permanent posts for the forthcoming academic year. Of the remaining fourteen probationers, one would complete probation during that year and the others would be relying on filling supply posts. Local authorities in Scotland do not normally assign ICT logons to supply teachers and the teachers in question were concerned that they would be disadvantaged once more. These concerns must be addressed.

These teachers were all to be interviewed again at the end of their second year of teaching when it is hoped that they would be able to report a positive experience.

**References**


http://www.becta.org.uk/publications


**Author**
Mrs Mary Welsh
University of Strathclyde
Department of Childhood and Primary Studies
76 Southbrae Drive
Glasgow G13 1PP
Email: mary.welsh@strath.ac.uk

*This document was added to the Education-line collection on 25 January 2010*