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Original Citation

Morley, Graham (2010) Suggestions to Assist Primary Teachers in Keeping Pace with ICT: Teachers' Experiences in England. In: 2nd International Conference on Education, Economy & Society, 21-24 July 2010, Paris, France. (Unpublished)

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Suggestions to Assist Primary Teachers in Keeping Pace with ICT: Teachers' Experiences in England

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Abstract: The research uses both qualitative and quantitative methodologies employing multiple sources of data collection. Quantitative data collection used a survey of primary schools in two English Local Authorities. The qualitative evidence of the teacher sample was through individual semi-structured interviews and a focus group interview of Local Authorities officers. There is an evidence trail which examines academic papers, HMI, QCA, Ofsted and DfES reports. The main findings indicate that teachers were becoming familiar with the use of computers. They understood the skills involved in using computers but were still uncertain as to a suitable pedagogy. Teachers involved in the study are finding it difficult to find time to either keep pace or develop their ICT skills. They also lack confidence in using ICT in their classrooms.

Keywords: primary education, pedagogy, innovative, basic skills, learning opportunities, leadership, time, curriculum, soft-ware, teacher confidence, teacher education

The DfES (2005) suggest that a new innovative pedagogy appropriate for the 21st. century is required, as the traditional methods have failed to deliver. Becta (2004; 2007), Scrimshaw (2004) and Holmes and Gardener (2006) suggest a change from a 'teacher-centred' model to a 'student-centred' model, but this takes time, motivation from the teachers, as well as, direction and support from management.

The Stevenson Report (1997) identified inadequate hardware, little software related to the curriculum and variable teacher skills and attitudes. HMI (Ofsted, 2005) report this finding as being the three contributing factors in raising the quality of teaching using ICT. Ofsted (2004) have reported that the NOF training was too ambitious in its aims and lacked pedagogical content. Becta (2004) suggest that training/instructional courses that lack a pedagogical aspect, while still having an element of basic skills training, are likely to be unsuccessful.

Head teachers and senior management are becoming more aware of the developments in ICT to provide very different learning opportunities. Schools need to design an 'integrated pedagogy' as suggested by Cornu (1995). In 2007 National College for School Leadership and Becta have introduced 'Strategic Leadership of ICT' which is intended to deliver a leadership programme that gives school leaders the tools to place technology at the centre of teaching and learning.

Becta (2004) suggest that there is a barrier to the use of new technologies within the teaching profession, they also suggest that educational change is a slow process, with teachers needing time to gain experience with computers. Kennewell and Beauchamp (2003) suggested that teachers needed time and support. It is not only the time required in becoming skilful at using a computer and its programs but also the time required to incorporate the required pedagogy into the existing curriculum. Teachers also need to have the confidence to perform these skills and abilities within their classrooms.

Table 1 – Questionnaired Teachers - Frequency with which computers are used in the classroom

		Frequency	%
Valid	Every lesson	1	1.47
	Frequently	7	10.29
	Occasionally	28	41.16
	Infrequently	27	39.69
	Never	2	2.94
Total		65	95.55
Missing		2	2.94
Total		67	98.49

Table 1 would suggest that teachers feel that computers are being used frequently and occasionally, with 2.94% saying that they never use computers. Loveless (2003) suggests that there is a difference between what teachers claim to use ICT for and their actual classroom practice.

Why are some teachers not using computers more? Are there any similarities between the teachers who are not using computers in the classroom?

Table 2 – Questionnaired teachers who felt they needed more time to understand ICT Programs

Gender	Male	% Male	Female	% Female	Total	% Total
Number of teachers who felt they need more time with computer programs	22	88	41	97.6	63	92.61
Number of teachers who felt that they do not need more time with computer programs	3	12	1	2.4	4	5.88

Table 2 would suggest that teachers have some difficulty with the programs. 92.61% of teachers were saying that they need time to understand the programs, to get to know how to navigate and what the programs can do.

Three other recurring themes regarding computer programs were:

- 1) The cost of programs
- 2) The ease of access and navigation
- 3) The ease of access and usability of Microsoft programs.

Teachers were aware of the need to be selective in choosing new programs because of their expense and the cost of the site licenses. The ease of navigating the program was a priority with teachers.

Table 3 –The number of Questionnaired teachers who regularly use Microsoft Programs in their lessons

Gender	Male	% Male	Female	% Female	Total	% Total
Number of teachers who regularly use Microsoft programs	24	96	42	100	67	97.02
Number of teachers who do not regularly use Microsoft programs	1	4	0	0	1	1.47

Microsoft programs are being widely used during the delivery of lessons. Other commercially produced programs a data handling package due to Microsoft Access was not user friendly.

The research reports (Table 3) that 97.02% of teachers use Microsoft programs regularly in their lessons. This would indicate that teachers are not becoming more discerning but are actually being narrower in their use of computer programs. Both the teachers and pupils know the Microsoft programs and therefore they are able to appropriately use them; also the teacher does not have to teach the pupils to use the program.

Could this be either a gender or an age issue? Looking back at the Tables 2 and 3 there are very similar percentages for both genders, who both need more time and regularly use Microsoft programs.

The questionnaire respondents were approximately 1/3 male and 2/3 female (Table 4).

Table 4 - Questionnaire Respondents Gender

Gender	Count	%
Male	25	37.3
Female	42	62.7
Total	67	100

There was comparative consistency when comparing the respondents ages to their gender (Table 5).

Table 5 - Ages - Gender Cross tabulation of Questionnaire Respondents

20– 30 Yrs old		31 – 40		41 – 50		51 – 60		Sub-total		Total
Male	Female	Male	Female	Male	Female	Male	Female	M	F	
2	8	7	13	8	13	8	8	25	42	67
2.98%	11.92%	10.43%	19.37%	11.92%	19.37%	11.92%	11.92%	37.25	62.58	99.83%

With the teaching experience cross tabulated with gender (Table 6) there was comparative consistency of the ratio of 1/3 to 2/3 up to 21+ years of experience where it then became 50:50.

Table 6 - Teaching experience - Gender Cross tabulation of Questionnaire Respondents

Teaching experience in years	Gender					
	Male	Female	Total	% Male	% Female	% Total
0-10	7	12	19	10.44	17.88	28.32
11-20	5	17	22	7.45	25.33	32.78
21-30	11	11	22	16.39	16.39	32.78
31- 40+	2	2	4	2.98	2.98	5.96
Total	25	42	67	37.26	62.58	99.84

Table 7 – Gender – Frequency of use of computers Cross tabulation of Questionnaire Respondents

Frequency computers used	Gender				
	Male	% male	Female	% Female	% Total
every lesson	0	0	1	1.49	1.49
frequently	3	4.47	4	5.6	10.07
occasionally	9	13.41	19	28.31	41.72
infrequently	10	14.9	16	23.84	38.74
never	1	1.49	1	1.49	2.98
No answer	2	2.98	1	1.49	4.47
Total	25	37.25	42	62.22	99.47

From Table 7 it would appear that males use computers proportionally more than females especially with usage that is frequently, occasionally and infrequently. The ratio is well over 50% for male usage which could indicate that there might be a gender issue.

**Table 8 – Age – Frequency of use of computers
Cross tabulation of Questionnaire Respondents**

Frequency computers used	Age band							
	20-30	%	31-40	%	41-50	%	51-60	%
every lesson	-	-	-	-	1	1.49	-	-
frequently	-	-	2	2.98	4	5.96	1	1.49
occasionally	5	7.45	8	11.92	7	10.43	8	11.92
infrequently	5	7.45	8	11.92	7	10.43	6	8.94
never	-	-	-	-	1	1.49	1	1.49
No reply	-	-	2	2.98	1	1.49	-	-
Total	10	14.9	20	29.8	21	31.29	16	23.84

Surprisingly Table 8 indicates that younger teachers are not using computers other than occasionally and infrequently. As suggested by Becta (2004; 2007) and Scrimshaw (2004) this could be due to their lack of confidence regarding their subject knowledge compared to their computer knowledge and skill. The older teachers should be confident about their subject knowledge and can therefore be able to identify areas where computers can support and extend teaching and learning.

The under usage of computers cannot be attributed to just the lack of pedagogical understanding of where computer usage assists with teaching and learning within the subject area.

**Table 9 - How many Questionnaire Respondents
Lack confidence about ICT**

Lack Confidence	Gender	
	Male	Female
Yes	0	2
	Age Band	
	41 - 50	51 - 60
Yes	1	1
	Teaching Experience	
	21 - 30	31 - 40+
Yes	1	1

Teachers are concerned about their confidence in using ICT. There is a disparity of confidence between male and female teachers when using ICT (Table 9); 100 % of males and 95% of female teachers now appear to be more confident with personal use of ICT. The two female teachers appear to be well experienced and in the older age bands.

Table 10 - How many Questionnaire Respondents feel they need more time to understand programs

Time to understand programs	Gender					Total %			
	Male	%	Female	%					
Yes	2	8	4	9.52	8.95				
	Age band								
	20-30	%	31-40	%	41-50	%	51 - 60	%	Total %
Yes	2	2.98	1	1.49	2	2.98	1	1.49	8.95
	Teaching experience								
	0-10	%	11-20	%	21-30	%	Total %		
Yes	2	10.4	2	9	2	9	8.95		

There is still a 1/3 male to 2/3s female split with teachers wanting more time to understand programs. Looking at the percentage against each gender group, the percentages are very similar, while against the total cohort it is 8.95%. The age band has a wave effect but the numbers involved compared with the total are small at 8.95%. Teaching experience is also consistent in both its number of teachers and percentages. The total percentage of the cohort being 8.95%

Table 11 - How many teachers felt they needed more support in the use of pedagogy

	Male	% Male	Female	% Female	Total	% Total
Teachers who feel they need support in the use of pedagogy	18	72	21	50	39	58.2
No mention for the need for pedagogical support	7	28	21	50	28	41.79

The research found (Table 11) that 58.2% of teachers questioned are asking for clarification regarding their pedagogy with ICT and to be given some direction. This cannot be good for teachers' self-esteem or their confident delivery of the curriculum.

Monies once devolved to Local Authorities for training and Continual Professional Development of teachers has now been directly delegated to schools. Schools control the training agenda and decide who, when and what courses teachers can attend.

Schools are now prioritising their needs to match the ever increasing demands and judgements of them through the core subjects. The LA Officers interviewed highlighted the fact that, both local but more especially Ofsted inspections drove the Inset programmes within the schools.

Conclusion

The major issues raised by the teachers were; computer skills training, time to use those skills, time to be familiar with programs and what was the 'correct' pedagogy when using computers. It would seem that there is a little more uncertainty with males regarding their use of pedagogy when using ICT but they appear to use computers more in class than females.

This cannot happen without the support and leadership of the headteacher and senior management. The headteacher needs to have a shared vision where staff can experiment even if things go wrong, but experimentation is clearly not happening.

Cummings (1998), cited in Fletcher (2006, 208) suggests that teachers in America have the knowledge and skills to integrate technology into their teaching but do not have the time. Franklin, (2000) cited in Fletcher (2006, 209), states that teachers in the USA are having a very similar experience to those in Britain. Charalambous and Karagiorgi (2002), Zhang (2004) and Fletcher (2006) report this phenomenon as a world wide problem.

There is a great deal of similarity between gender, age and teaching experience when using ICT in the classroom. The lack of confidence in using ICT in the classroom it would seem crosses all national boundaries.

Glossary

Becta	British Educational Communications and Technology Agency
DfES	Department for Education and Skills
HMI	Her Majesty's Inspectorate
ICT	Information and Communication Technology

Ofsted Office for Standards in Education
QCA Qualifications and Curriculum Authority

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