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What is the problem: gender, age or experience? Issues for primary teachers with ICT

Dr Graham Morley

Abstract — The research uses both qualitative and quantitative methodologies employing multiple sources of data collection. The data collection primarily used a questionnaire 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. The reports have a generic view of teachers, with no further analysis of gender, age or experience phenomena. The analysis of these variables concludes that teacher subject knowledge formed from teaching experience of the subject, informs teachers when computers aid teaching and learning.

Index Terms — primary education, pedagogy, innovative, basic skills, learning opportunities, leadership, time, curriculum, soft-ware, teacher confidence, teacher education, age, gender, teaching experience

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omputer use is increasingly important in schools for teaching and learning. Governments world wide have introduced schemes to equip schools with classroom computers and broadband internet connections. This paper analyses whether the use of computers by teachers in England is related to any specific issues and factors. Current literature advocates that there are many opportunities for computers to assist in raising standards in teaching and learning. Yet Ofsted and HMI report that there are varying degrees of usage among primary school teachers. This paper investigates whether primary school teachers report any collective issues regarding their reluctance for computer usage and whether there are any significant variables associated with gender, age or teaching experience within the primary school teaching body.

2 Literature Review

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, they suggest, takes time and motivation from the teachers, as well as, direction and support from management.

The Stevenson Report (1997) identified both inadequate hardware and 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 but is gender, age or teaching experience an influence on these factors.

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 educational change is a slow process and that teachers need time to gain experience with computers. They also purport that teachers are reluctant to use new technologies'. Kennewell and Beauchamp (2003) also suggested that if teachers are going to become confident in the use of computers in the classroom they need time and support. It is not only the time to become skilful in using a computer and its programs but also time to incorporate the required pedagogy into the existing curriculum. These are generic statements regarding teachers; with no acknowledgment that there could be other factors of age, gender or teaching experience that could be influencing teacher performance.

3 Methodology

The research used a questionnaire based upon qualitative and quantitative data questions. The questionnaire was initially piloted with non-participants and accordingly adjusted from participant feedback and researcher criticism. The amended questionnaire was then circulated to the ICT co-ordinator in all primary schools within two local authorities. This paper analyses the data from those questionnaires.

Further deeper qualitative data was gained through semi-structured interviews with a cross-section of teachers, which matched the national and local profile for teachers in gender, age and teaching

experience; followed by a focus interview with local authority officers with responsibility for primary education.

4 Analysis of Data

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.

This raises a number of questions. Which teachers are not using computers? Are there any commonalities between the teachers who are not using computers in the classroom? What issues are there for teacher none use of computers in the classroom?

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

Gender	Male		Female		Total	
	Male	% Male	Female	% Female	Total	% Total
Teachers who felt they need more time with computer programs	22	88	41	97.6	63	92.61
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 both male and female teachers are having some difficulty with the programs. 92.61% of all 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, from all the teachers were:

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

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

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

Both male and female teachers are widely using Microsoft programs during the delivery of their lessons. 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. Microsoft Access is not user friendly so teachers used other commercially produced programs.

Frequency	Gender		%		%
	Male	% male	Female	% Female	
used 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

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

Table 4 - Questionnaire Respondents by Gender

Gender	Count	%
Male	25	37.3
Female	42	62.7

Total	67	100
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The tables represented the data by respondents' gender; it gave no insight as to other possible variables that could be attributed to their lack of computer usage. Further data was analysed by age and teaching experience.

There was inconsistency 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	
Male	Female	Male	Female
2	8	7	13
2.98%	11.92%	10.43%	19.37%
41 - 50		51 - 60	
Male	Female	Male	Female
8	13	8	8
11.92%	19.37%	11.92%	11.92%

Sub-total		Total
Male	Female	
25	42	67
37.25%	62.58%	99.83%

With the teaching experience cross tabulated with gender (Table 6) there was inconsistency for the ratio 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	
	20-30	%	31-40	%	41-50	%
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 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 for personal use

Lack of Confidence	Gender			
	Male	%	Female	%
Yes	0	0	2	0.84
Yes	Age			
			41- 50	51 - 60
	0		1	1
	Teaching Experience			
		21 - 30	31 - 40+	
Yes	0		1	1

Teachers are aware of 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 99% 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				
	Male	Of Total %	Female	Of Total %	Total %
Yes	2	1.34	4	2.68	4.02
Yes	Age				
			20-30		

|0-10 |% |11-20 |% |21-30 |% |Total % | |Yes |2 |1.34 |2 |1.34 |2 |1.34 |4.02 | |

There is 1 to 2 male to female split with teachers wanting more time to understand programs. The percentage against each gender group, the percentages are very similar, while against the total cohort it is 4.02%.

The age band has a wave effect but the numbers involved compared with the total are small at 4.02%.

Teaching experience is also consistent in both its number of teachers and percentages. The total percentage of the whole cohort was 4.02%.

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

The research found (Table 11) that 58.2% of teachers questioned are asking for clarification and some direction regarding their pedagogy with ICT. There were significantly more male teachers (72%) asking for this than female (50%) and yet male teachers felt more confident with their personal use of computers.

This cannot be good for teachers' self-esteem, their confident delivery of the curriculum or their pupils.

5 Conclusion

In conclusion, the major issues raised by the teachers were; time to increase computer skills, how to use those skills during teaching and to be familiar with programs. They were concerned as to what was the 'correct' pedagogy when using computers.

The lack of confidence in using ICT in the classroom, it would appear, crosses all boundaries. It would seem that there is a little more uncertainty with males regarding their use of pedagogy when using ICT and they appear to use computers less in class than females. Gender and age do not seem to be major factors in the use of computers in the classroom but rather the teaching experience. The most influential factor seems to be the subject knowledge combined with teaching experience which allows the teacher to determine when computers can be best used for teaching and learning.

6 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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