

Survey of Microcomputers in Schools

Department of Education and Science*

A survey was carried out in November 1985 on a sample of 500 primary and 500 secondary schools. By the end of January 1986 the Department had received completed questionnaires from 75 per cent of primary and 53 per cent of secondary schools in the sample, a low response for the secondary sector. The Department is satisfied that the distribution by size and type of responding schools was broadly representative. The results need to be interpreted in that light.

The survey sought to discover in particular, the number and type of micros and associated equipment in maintained primary and secondary schools, the level and source of funding, the extent of teacher training in the use of micros and the extent of use by pupils. In addition, secondary schools were asked to identify individual departments which used the micro, the software packages most used by them and the curricular purposes of using the packages. The BBC carried out an earlier study of micros in secondary schools in April 1984 and, where possible, comparisons are made between the two sets of results.

Summary of Main Results

A. Primary Schools

- i. There were, on average, 1.7 micros per primary school. About 72 per cent of the micros were the BBC Acorns.
- ii. Over 81 per cent of primary schools had at least one colour monitor and 71 and 26 per cent had floppy disc drives and printers respectively.
- iii. Nearly 60 per cent of staff in primary schools with micros used their micros at least once a week.
- iv. Headteachers in nearly 60 per cent of primary schools with micros reported that micros had made a significant contribution to teaching.
- v. The five packages most used by primary schools through the 1984-85 school year were Microprimer, Granny's Garden, Dart, Logo and Factfile.
- vi. On average, £1.64 was spent per pupil in primary schools on micros in 1984-85 with over half of the funding met by PTAs and other non LEA sources. Average spending per pupil was higher in socially advantaged areas than in disadvantaged.

TABLE 1: Average number of pupils per Micro: Rural/Urban

	Primary pupils per micro	Secondary pupils per micro
Rural	66	52
Small town	101	67
Outer area of large town or city	118	59
Inner area of large town or city	143	57
Overall average	107	60

TABLE 2: Average number of pupils per Micro: relatively prosperous/disadvantaged

	Primary pupils per micro	Secondary pupils per micro
Relatively prosperous	94	59
Economically disadvantaged	130	56
Neither	102	63
Overall average	107	60

TABLE 3: Availability of additional hardware

	Percentage	
	Primary	Secondary
Schools with:		
Monochrome monitor	7	86
Colour monitor	81	92
Printer	26	93
Teletext adaptor	—	16
Tape recorder	75	81
Disc drive (floppy)	71	91
Disc drive (Winchester)	1	14
Concept keyboard	4	6
Modem/acoustic coupler	1	20
Bar code reader	—	13
Touch screen	—	—
Turtle	2	6
Buggy	1	48
VELA	—	41
Mouse	1	18

TABLE 4: Average amount spent on micros in 1984-85: Rural/Urban areas

	£			
	Primary per school	Primary per pupil	Secondary per school	Secondary per pupil
Rural	250	2.55	2170	2.76
Small town	365	1.79	2070	2.43
Large town/city:				
Outer area	305	1.43	2215	2.81
Inner area	285	1.26	2750	3.80
Overall average	305	1.64	2240	2.82

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B. Secondary Schools

vii. There were on average 13.4 micros per secondary school: 60 per cent of these were BBC Acorns.

viii. Twenty per cent of secondary school headteachers said that micros had made a significant contribution to teaching in their schools.

ix. On average, secondary schools spent about £2.82 per pupil on micros and associated equipment in 1984-85; more than half of the funding in secondary schools came from capitation allowances. Average spent per pupil was higher in socially advantaged areas than in disadvantaged areas.

Micros and other equipment available

The classification of schools into relatively prosperous/disadvantaged and urban/rural areas is based on assessments made by headteachers in responding to the survey. Details of the breakdown of sampled schools into the urban/rural and prosperous/disadvantaged classification are given in the Appendix.

Comparisons between schools classified as rural and urban show that there were fewer pupils per micro in rural schools, both primary and secondary. The average number of pupils per micro in secondary schools was familiar in relatively prosperous and disadvantaged areas.

Primary schools had, on average, 4 items of computer hardware in addition to their micro(s) compared to 25 items on average in secondary schools. Table 3 shows the percentage of sampled schools which had at least one of the items shown.

The most common piece of additional hardware in secondary schools was the colour monitor with an average of 7 per school. In the 1984 survey, 76 per cent of schools had at least one colour monitor, compared with 92 per cent of schools in the 1985 survey. Schools also had on average 6 disc drives, 4 monomonitors, 3 printers and 3 tape recorders.

Funding

Primary schools reported average spending of around £300 per school on microcomputers etc in the 1984-85 financial year compared with £2240 per school in secondary schools. Table 4 shows that there was considerable variation in levels of expenditure in

schools with different catchment areas ranging from an average of £250 in rural primary schools to £365 in small town primary schools. However, the amount of funding per pupil was much larger in rural primary schools than in the other

categories, and was lowest in the inner areas of large towns/cities.

In secondary schools, the average amount spent on micros both per school and per pupil was highest in inner city areas and lowest in small town schools.

TABLE 5: Average amount spent on Micros 1984-85: Relatively prosperous/disadvantaged areas

	Primary		Secondary	
	per school	per pupil	per school	per pupil
Relatively prosperous	365	1.94	2890	3.27
Disadvantaged	285	1.45	2010	2.87
Neither	290	1.62	2100	2.58
Overall average	305	1.64	2240	2.82

TABLE 6: Funding of micros in 1984-85: Rural/Urban areas (amount per pupil £)

	Other Capitation	LEA	PTA	Other
Primary				
Rural	0.36	0.59	1.20	0.41
Small town	0.41	0.45	0.66	0.27
Large town/city:				
Outer area	0.42	0.37	0.43	0.21
Inner area	0.25	0.18	0.07	0.07
Overall average	0.43	0.43	0.54	0.25
Secondary				
Rural	1.40	0.51	0.59	0.31
Small town	1.17	0.34	0.73	0.19
Large town/city:				
Outer area	2.73	1.00	0.68	0.58
Inner area	1.98	0.84	0.42	0.57
Overall average	1.49	0.51	0.54	0.28

TABLE 7: Relatively prosperous/disadvantaged areas: (Amount per pupil £)

	Capitation	Other LEA	PTA	Other
Primary				
Relatively prosperous	0.25	0.43	0.97	0.29
Economically disadvantaged	0.59	0.43	0.26	0.16
Neither	0.37	0.41	0.57	0.28
Overall average	0.43	0.43	0.54	0.25
Secondary				
Relatively prosperous	1.57	0.56	0.88	0.26
Economically disadvantaged	1.84	0.57	0.23	0.23
Neither	1.27	0.44	0.54	0.34
Overall average	1.49	0.51	0.54	0.28

The average amount spent per pupil was much higher in relatively prosperous than in other areas, in both the primary and secondary sectors (Table 5).

Sources of Funding

The amount spent on micros in 1984/85 were funded from a variety of sources; for primary schools, 26 per cent of funds came from capitation allowances, 26 per cent from other LEA sources, 33 per cent from PTAs and 15 per cent from other sources. Funding from the DTI programme had occurred in earlier years but not in 1984/85. The proportion of funding from LEA sources was much higher in secondary schools; 53 per cent came from capitation allowances and 18 per cent from other LEA sources, compared with 19 per cent from PTAs and 10 per cent from other sources.

The relative contributions made by different sources of funding differed between rural and urban primary schools. In schools classified as 'inner city', the largest amount of funding came from capitation, while in rural and small town classified schools the largest source of funds came from PTAs. There was less variation in this respect between different catchment areas in secondary schools. (Table 6)

Capitation and other LEA sources provided a much smaller proportion of funding in schools classified as relatively prosperous than in disadvantaged areas in the primary sector: the balance was met mainly by greater funding by PTAs — nearly four times the amount per pupil in relatively prosperous areas compared with disadvantaged areas. Capitation provided the largest amount of funding in all types of secondary schools. (Table 7)

In addition to the usual sources of funding, about 25 per cent of secondary schools had received special funding for developing information technology for use in the curriculum: details are given in Table 8.

Sources of information and software

Schools were asked both where they obtained information about software and their sources of software. LEA centres and advisers, publishers' literature and articles and reviews were the sources most commonly used by

teachers in primary and secondary schools for obtaining information about software (Table 9). The use of in-service training courses and informal contacts as information sources declined in

percentage terms between the 1984 and 1985 surveys while the use of publishers' literature and articles increased.

The most commonly used sources for acquiring software were LEA centres

TABLE 8: TVE1 and other sources of funding

Source of Funding	Average amount of special funding in the last financial year	Percentage of schools receiving this funding
	£	%
TVE1	5200	5
Special curriculum development fund	1700	10
TRIST	4350	1
Other	1900	15

* Per school

TABLE 9: Sources used by schools for obtaining information about software¹

Percentage of schools naming each source

Source of information	Primary	Secondary
MEP Regional centres	46	65
INSET	42	44
Publishers	71	85
Articles and reviews	61	81
LEA centre/adviser	77	71
Informal contacts	56	66
User groups	29	32
Commercial sources	29	44
Prestel	—	—
Times Network	—	—
Other	—	—

¹ Schools were asked to identify all sources which applied, hence percentages do not add to 100.

TABLE 10: Sources used by schools for acquiring software¹

Percentage of Schools naming each source.

Source of software acquisition	Primary	Secondary
MEP Regional centres	30	36
INSET	21	21
Publishers	26	39
Articles and reviews	11	18
LEA centre/adviser	58	62
Informal contacts	24	27
User groups	15	15
Commercial sources	38	50
Prestel	—	—
Times Network	—	—
Other	—	—

¹ Schools were asked to identify all sources which applied, hence percentages do not add to 100.

and advisers and commercial sources (including hardware suppliers or magazines). Publishers were also a significant source in 1985, but less so in 1984.

The Contribution of micros to the curriculum

Headteachers in 57 per cent of primary schools considered that micros had made a substantial contribution to teaching in their schools. Nearly 60 per cent of teaching staff in primary schools were reported as regularly using micros and 42 per cent were also training colleagues in their use.

In contrast only 23 per cent of secondary schools' headteachers considered that micros had made a significant contribution to teaching.

Staff training on use of micros

The response rate from heads of departments in secondary schools was low and the information reported on training only gave a broad indication of its extent. It was roughly comparable to that reported by primary schools. For primary schools, 60 per cent had received some form of training (see Table 11).

Use of micros: Primary schools

The proportion of teaching hours in primary schools in which micros were reported to be available was larger for the older age groups (Table 12). Micros were available for about 32 per cent of total teaching hours on average for all pupils. The proportion of 11 year old pupils with 'hands on' experience was lower than either 7 or 9 year olds, possibly reflecting the relatively recent introduction of micros into primary schools.

Younger pupils in primary schools used the micro mainly to develop keyboard and mathematical skills while, for older pupils, the emphasis was on problem solving, simulations and databases (Table 13).

Headteachers were also asked to identify the main uses of micros in the curriculum. The main subject areas where the micro was used were mathematics (93 per cent of schools) and the learning of language and communication (92 per cent). (Table 14).

TABLE 11: Type of training on use of micros received by teachers in primary schools

Percentage of all staff by type of course

Type of training course	Primary
Initial induction — course only	27
One short in-service course	21
More than one short course	12
Award bearing in-service course	(0.1)

TABLE 12: Experience and availability of micros in primary schools

Age group:	Percentage of pupils with 'hands on' experience	Percentage of teaching hours in which micros are available for use by some pupils
5 year olds	58	24
7 year olds	81	34
9 year olds	75	35
11 year olds	66	32
Overall average	70	32

TABLE 13: Micro applications in primary schools

Percentages

	5 year olds	7 year olds	9 year olds	11 year olds
Percentage of schools using micros mainly for:				
Keyboard skills	36	10	4	2
Mathematical skills	42	48	39	34
Problem solving	9	22	23	26
Word processing	3	6	10	11
Databases	—	—	6	8
Spreadsheet	—	—	—	—
Simulations	—	3	6	11
Others	11	11	12	8
All schools using micros with the age group	100	100	100	100

TABLE 14: Uses made of micros in the curriculum: primary schools

Uses of the micro:	Percentage of schools ¹
Language & Communication	92
Science	26
Mathematics	93
History, geography/topic work	44
Art and Craft	15
Other	33

¹ Schools could tick more than one item.

TABLE 15: Departmental use within secondary schools

	Percentage of schools
Use in named department:	
Art	5
Chemistry	32
English	25
History	23
Modern languages	14
Physical education	5
Religious studies	4
Careers	17
Craft and Technology	36
Economics	13
Law	0
Biology	22
Classics	1
Geography	38
Mathematics	67
Music	8
Physics	37
Business Studies	29
Computer Studies	58
Drama	1
Home Economics	12
Sociology	4
Other	50

Use of micros: Secondary schools

Micros were most frequently used in mathematics departments, followed by computer studies departments; additionally some of the use in mathematics departments will have been for computer study purposes.

Science departments, geography and CDT also made significant use of the micros. Nearly every type of department was reported to be making some use although several, including physical education, art and RE were reported as using the micro in 5 per cent or less of schools. (Table 15).

The use of micros for the acquisition of mathematical skills and for problem solving were the most common areas among the younger age groups in secondary schools (Table 16).

Database simulation and word processing were the more frequent uses amongst the older age groups. Most secondary schools (71 per cent) offered examination courses in computer studies and 16 per cent offered examinable courses in microelectronics. Headteachers were asked to classify their schools catchment area according to whether they were relatively prosperous/disadvantaged and urban/rural. Details are given in Tables 17 and 18 below.

Further Information

Enquiries about the figures shown in the bulletin should be addressed to the Department's Statistics Branch at the London address — Direct Telephone No 01-934 9044.

TABLE 16: Micro applications in secondary schools

Percentage	Age of pupils					
	11-12	12-13	13-14	14-15	15-16	16-19
Using micros mainly for:						
Keyboard skills	5	6	8	9	5	4
Mathematical skills	30	23	10	10	9	8
Problem solving	22	16	28	19	15	8
Word processing	10	13	8	14	16	22
Databases	5	7	2	13	16	7
Spreadsheet	—	—	—	—	1	2
Simulations	9	10	20	20	18	37
Others	19	25	25	16	20	13
All schools using micros with the age group	100	100	100	100	100	100

TABLE 17: Number of schools in sample classified as urban/rural

	Primary	Secondary
Rural	90	35
Small town	100	76
Outer area of large town or city	123	116
Inner area of large town or city	64	36
Total	377	263

TABLE 18: Number of schools in sample classified as relatively prosperous/disadvantaged

	Primary	Secondary
Relatively prosperous	87	56
Economically disadvantaged	113	76
Neither	177	131
Total	377	263