

Computers in the Schools 2001

- a quantitative picture -

Summary: The National Agency for Education has made surveys of the computer stock in Swedish schools in 1993, 1995, 1997, and 1999. In the spring of 2001, it was time to repeat the inventory. From 1999 to 2001, the number of computers in the schools has continued to increase sharply. Especially the number of computers for teachers' use has increased, but even computers used in teaching have increased in number. The number of computers for teachers' use has risen by 84 percent in municipal primary-secondary schools, and the number of teachers per computer is now three rather than six as it was in 1999. The substantial increases now seen in primary-secondary schools are clearly connected to the national campaign undertaken by the Delegation for IT in schools (ITiS) in 1999-2001, which aimed, among other things, to give 60,000 teachers IT competence training and access to their own computer. In both municipal and independent primary-secondary schools, about eight pupils have common access to a computer, as compared to ten pupils in 1999. In municipal and county council upper secondary schools, computer density has been intensified from five to four students per computer. In independent upper secondary schools, the number of computers has increased by 83 percent but with an unchanged computer density in comparison to 1999, three students per computer. The substantial increase in computers used in teaching in independent schools is entirely commensurate with the increase in the number of students. In primary-secondary schools, 78 percent of the computers used in teaching can access the Internet, as compared to 57 percent in 1999. In upper secondary schools, 93 percent of the computers used in teaching are connected to the Internet, as compared to 87 percent in 1999. Almost two-thirds of the pupils in primary-secondary schools and 81 percent in upper secondary schools have access to an e-mail address. The corresponding percentage of teachers with access to an e-mail address is 84 percent in primary-secondary schools and 92 percent in upper secondary schools.

Subject words: quantitative survey, computers, IT

Computers in the Schools 2001

Contents

	Page
Summary	
1. Background	
2. Computers used in teaching	
Primary-secondary school (<i>grundskolan</i>)	
Upper secondary school	
Local authority administered adult education (<i>komvux</i>)	
Schools for the learning disabled	
Other types of schools	
3. Computers for teacher use only	
Primary-secondary school	
Upper secondary school	
Local authority administered adult education	
Schools for the learning disabled	
Other types of schools	
On-line computers for teachers	
4. The Internet and the joint municipal school network / WAN	
Internet	
Joint municipal school network / WAN	
5. E-mail	
6. IT strategy/program	
7. Response frequency	
8. Questionnaire form	

Summary

The number of computers in Swedish schools continued to increase between 1999 and 2001. There was an especial increase in the number of computers for teachers' use, but even the number of computers for use in teaching has increased.

The number of computers for teachers' use rose by 84 percent in municipal primary-secondary schools (*grundskolan*), 31 percent in upper secondary schools, 41 percent within local authority administered adult education (*komvux*) and 88 percent in schools for the learning disabled. The prominent increases in primary-secondary schools and schools for the learning disabled are clearly connected to the ITiS campaign for teachers' computers.

The number of computers for teaching rose by 15 percent in primary-secondary schools and 12 percent in the upper secondary schools, 26 percent within "komvux" and 27 percent among schools for the learning disabled.

The number of computers for teaching and the number of pupils per computer vary depending on the type of school according to Table 1 below.

Table 1: Computers for teaching according to type of school

Computers for teaching	1993		1995		1997		1999		2001	
	Number computers	Number pupils per computer	Number computers	Number pupils per computer	Number computers	Number pupils per computer	Number computers	Number pupils per computer	Number computers	Number pupils per computer
Municipal primary-secondary schools	21 143	38	45 013	19	72 899	13	101 602	9.6	117 136	8.4
Independent primary-secondary schools			1 526	12	2 175	13	3 182	9.5	5 345	7.9
Mun+county council upper secondary schools	24 191	11	40 547	8	53 168	7	65 075	5.3	72 561	4.2
Independent upper secondary schools			974	6	1 413	5	2 692	2.8	4 913	2.8
Local authority administered adult education	4 417	*	8 286	8	11 663	9	14 906	9.1	18 754	8.7
Mun+county council schools for the learning disabled	1 294	8	1 821	6	2 271	4	2 429	4.5	3 082	3.4
Independent schools for the learning disabled			48	5	47	7	63	4.7	90	4.4
Adult ed. for the learning disabled			388	6	314	8	580	4.3	517	5.3

Special schools	196	4	209	4	311	2.6	369	2.2
SSV, Nat'l School for Adults	25	**	52	**	43	**	70	**
Sami school	16	8	40	4	10	17.1	42	3.9

* Information not available

** Not relevant measurement

The number of teachers (adjusted to number of full-time posts) per teachers-only computer has decreased significantly between 1999 and 2001, especially in primary-secondary school and schools for the learning disabled. In primary-secondary schools, there are now three teachers per computer, in upper secondary schools more than one, in local authority administered adult education just under two, and in schools for the learning disabled, four teachers per computer.

Since 1993, a successively decreasing percentage of computers are placed in computer rooms. More than three out of four computers used in teaching in primary-secondary school and six of seven in schools for the learning disabled are now to be found in other types of classrooms. In upper secondary schools, however, more than one out of every other computer for teaching use is still found in special computer rooms, and two out of three within local authority administered adult education.

The percentage of teaching computers that have access to the Internet has risen between 1999 and 2001. This still varies somewhat depending on the type of school, with the highest percentages in upper secondary schools and local authority administered adult education (more than nine computers of ten), somewhat fewer in primary-secondary school (more than three computers of four) and the lowest percentage in schools for the learning disabled (two computers of three).

According to the questionnaire, nine out of ten primary-secondary and upper secondary schools have access to the Internet, while the percentage reported for local authority administered adult education and schools for the learning disabled is lower – seven of ten schools in local authority administered adult education and four of ten in schools for the learning disabled. Of the schools with access to the Internet, the proportion that have an on-line connection has risen to almost half on the primary-secondary level, almost nine out of ten in the upper secondary schools and local authority administered adult education, and seven out of ten in schools for the learning disabled.

Access to e-mail has risen between 1999 and 2001 for both teachers and pupils. In primary-secondary school, almost two out of three pupils and more than four out of five teachers have e-mail through the agency of their school. In upper secondary schools, four out of five pupils and nine out of ten teachers have e-mail, and in schools for the learning disabled, one out of three pupils and two out of three teachers. Within local authority administered adult education, however, the percentage has increased only for pupils. One of three students there and three of four teachers has access to e-mail through their school.

Since 1997, the proportion of school-governing bodies that report some kind of IT strategy/action program for the computer field has not changed appreciably. In local authority administered adult education and schools for the learning disabled, the percentage has even dropped somewhat.

1. Background

For the years 1993, 1995, 1997, and 1999, the National Agency for Education (*Skolverket*) has conducted quantitative surveys of the availability of computers in the schools. The studies were last presented in 1999 in the Agency's Report No. 176 *Schools and computers 1999 – a quantitative picture*.

During the winter of 2001, the survey was repeated in basically the same way as in 1999. The 1993 survey covered the following types of schools: primary-secondary, upper secondary, local authority administered adult education, and schools for the learning disabled within municipalities and county councils. The subsequent studies also included adult education for the learning disabled, the Sami school, special schools and SSV, the National School for Adults, and comprised both government and independent (non-government) school authorities.

The 2001 study was conducted by means of a questionnaire that was sent to all school-governing bodies in the middle of January, 2001. Two reminders were sent out in February and March. Each school authority was expected to collect the data from their schools and compile the answers for each type of school. Implementation and processing of the study was done by *LK Statistik & Utredningar* in Linköping, on commission by the National Agency for Education.

The purpose of the study was to give a quantitative picture of the different types of schools and school-governing bodies vis-a-vis the number of computers, their placement, and the prevalence of the Internet, e-mail, and a joint municipal school network, WAN (Wide Area Network). The questions concerned both computers used in teaching and computers for use by teachers only. Furthermore, each school-governing body was asked if they had adopted an IT strategy or action program for the computer field.

Many school authorities are in charge of several types of schools that use the same buildings and computers. In other words, the types of schools – at least from the point of view of the survey – are integrated. There are some twenty different combinations of “computer-integrated” types of schools, the most common being: primary-secondary school + schools for the learning disabled; upper secondary school + local authority administered adult education; upper secondary school + adult education + adult education for the learning disabled; and local authority administered adult education + adult education for the learning disabled. In the analysis of the data, this has been taken into consideration. If, for example, the upper secondary school and the local authority administered adult education in a municipality share the same computers, the number of computers and the total number of students and teachers in both types of schools have been recorded under “municipal upper secondary school.” More than one in three of the municipal school-governing bodies are affected by such a combination.

Some of the results from municipal primary-secondary schools and upper secondary schools are presented according to the municipal categories drawn up by the Swedish Association of Local Authorities.

In a separate table appendix, a summary of the responses from each school-governing body is presented.

In calculating the numbers of students and teachers per computer and access to e-mail, reports on the number of pupils and teachers were used. These figures pertain to the date October 15 2000. The information concerns the number of pupils and teachers for each school-governing body and type of school that responded to the questionnaire. To calculate the number of teachers per computer, the number of teachers was adjusted to apply to full-time posts. For the calculation of the availability of e-mail, however, the number used for teachers = number of individuals. Within local authority administered adult education, the number of students has been adjusted to apply to full-time students.

The number of responses was 2,005 of a total of 2,124 recipients of the questionnaire, which yields a response frequency of 94.4 percent. A percentage of 97.5 of the total number of pupils is covered by the responses. Response frequencies for the various types of schools and school-governing bodies are presented in Chapter 7.

Where possible, comparisons are made with the studies from 1993, 1995, 1997, and 1999 in this report.

The 2001 study covers seven types of schools and six different types of school-governing bodies. In order to simplify the presentation somewhat, the types of school and school-governing bodies have been grouped according to the following:

- #### Municipal primary-secondary school (including sub-municipalities as school-governing bodies).
- #### Independent (non-government) primary-secondary school.
- #### Municipal and county council upper secondary school including upper secondary school federation as governing bodies.
- #### Independent upper secondary school.
- #### Local authority administered adult education for which the school-governing body can be either a municipality, county council or upper secondary school federation.
- #### Local authority and county council school for the learning disabled.
- #### Independent school for the learning disabled.
- #### Adult education for the learning disabled for which the school-governing body can be either a municipality or upper secondary school federation.
- #### Special school (with state school-governing body).
- #### The National School for Adults (with state school-governing body).
- #### Sami school (primary-secondary school with the state school-governing body, the Sami School Authority).

2. Computers used in teaching

Questions 2 and 3 of the questionnaire concerned computers used in teaching. This also included computers used for teaching *and* for teacher use.

Primary-secondary school

According to the questionnaire of 2001, there is a total of more than 122,000 computers for teaching use in municipal and independent primary-secondary schools. Since 1999, the number of computers within municipal primary-secondary schools has increased by 15 percent, and in independent primary-secondary schools by 68 percent. The faster increase among independent primary-secondary schools compared to municipal primary-secondary schools is mainly connected to the fact that the number of pupils in independent schools has increased sharply.

Computer density has also risen, or to put it differently: between 1999 and 2001, the number of pupils per computer has declined from 9.6 to 8.4 in municipal and from 9.5 to 7.9 in independent primary-secondary schools.

Table 2 shows the total number of computers used in teaching and the number of pupils per computer in municipal and independent primary-secondary schools.

Table 2: Number of computers used in teaching in primary-secondary schools

Municipal primary-secondary schools	1993	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	Number	(1999=100)
Number of computers	21 143	45 013	72 899	101 602	117 136	115
Number of pupils per computer	38	19	13	9.6	8.4	

Independent primary-secondary schools	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Total	1 526	2 175	3 182	5 345	168
Number of pupils per computer	12	13	9.5	7.9	

Computer density varies somewhat among different kinds of municipalities. Table 3 presents the number of pupils per computer in municipal primary-secondary schools, distributed according to the municipal categories used by the Swedish Association of Local Authorities. The differences among municipal categories has leveled off considerably during the eight-year period covered by the surveys. The sparsely-populated municipalities, however, still have the lowest number of pupils per computer.

Table 3: Number of pupils per computer in municipal primary-secondary schools, according to municipal category

Municipal primary-secondary school	Pupils per computer	Pupils per computer	Pupils per computer	Pupils per computer	Pupils per computer
Municipal category	1993	1995	1997	1999	2001

Cities	54	*22	12	10.5	8.4
Suburban municipalities	38	21	14	9.9	8.9
Large towns	39	18	14	9.8	9.0
Medium-large towns	39	19	13	10.0	9.0
Industrial municipalities	32	19	13	9.6	7.8
Rural municipalities	36	19	12	9.1	7.3
Sparsely-populated municipalities	23	14	8	6.7	5.8
Other large-size municipalities	37	21	12	9.0	8.2
Other small-size municipalities	34	22	12	9.2	8.2

* No data available for Malmö from 1995

In Table 4 below, the percentage of computers used in teaching in the primary-secondary schools that have connections to the Internet is shown, as well as the percentage participating in local networks. The percentage of schools incorporated in local networks decreased between 1993 and 1995 (probably due to larger numbers of computers in the classrooms), but has since successively increased to close to three out of four in 2001. An even larger percentage of the computers have Internet connections.

Table 4: Percentage of computers used in teaching in primary-secondary school that are...

Municipal primary-secondary school	1993	1995	1997	1999	2001
	Percent	Percent	Percent	Percent	Percent
...connected to the Internet	..	..	31	57	78
...incorporated in a local network	30	24	38	57	74

Independent primary-secondary school	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
...connected to the Internet	..	49	57	70
...incorporated in a local network	45	49	60	68

When it comes to Internet connections and local networks, the differences among municipal categories have previously been relatively great, as can be seen in Table 5 below. The highest percentage in both cases is in the sparsely-populated municipalities, while the lowest is to be found in the big cities. Since 1999, however, the distribution among municipal categories has diminished, both in terms of the percentage of computers with Internet connections and the percentage of computers incorporated in local networks.

Table 5: Percentage of computers used in teaching in municipal primary-secondary schools in different municipal categories in 1997 and 1999 that are...

Municipal primary-secondary school	...connected to the Internet			...incorporated in a local network		
	Percent	Percent	Percent	Percent	Percent	Percent
Municipal category	1997	1999	2001	1997	1999	2001
Cities	27	43	67	38	51	60
Suburban municipalities	31	57	83	32	56	76
Large towns	32	63	79	38	58	77
Medium-large towns	28	54	75	35	53	72
Industrial municipalities	24	53	73	32	55	73

Rural municipalities	33	59	84	41	64	81
Sparsely-populated municipalities	56	77	87	50	78	84
Other large-size municipalities	32	59	79	47	62	71
Other small-size municipalities	28	54	80	37	52	77

In Diagrams 1 and 2, the placement of the computers used in teaching in primary-secondary schools is presented. In municipal primary-secondary schools, fewer than one in five computers is placed in a computer room. Since 1993, the percentage of computers placed in classrooms and other teaching facilities has steadily increased.

In independent primary-secondary schools as well, the percentage of computers placed in classrooms/other teaching facilities has increased considerably but is still somewhat lower than for municipal primary-secondary schools.

The increase in percentage of computers placed in classrooms can be explained as a result of the fact that the current national time schedule, as opposed to the previous one, has no allocation for computer science as a separate subject. Instead, the aspiration is for the computer to be a work tool in all subjects. For this reason, computers are needed in teaching classrooms and not only in special computer rooms.

Diagram 1: Placement of computers used in teaching in municipal primary-secondary schools

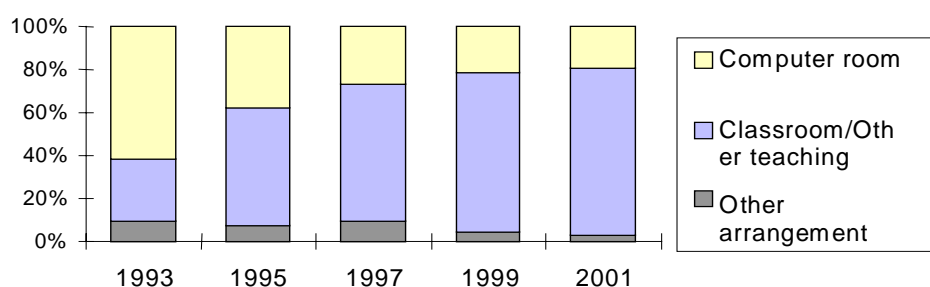
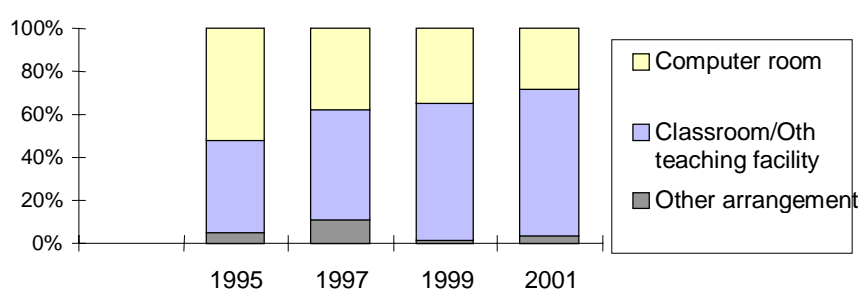


Diagram 2: Placement of computers used in teaching in independent primary-secondary schools



Upper secondary school

According to the questionnaire of 2001, a total of over 77,000 computers are used in teaching in upper secondary schools. Since 1999, the number of computers used in teaching in municipal and county council upper secondary schools has increased by 12 percent and in independent upper secondary schools by 83 percent. The number of students per computer in the municipal and county council upper secondary schools has decreased from 5.3 to 4.2 between 1999 and 2001, while the figure is an unaltered 2.8 in independent upper secondary

schools. The substantial increase in the number of computers in independent upper secondary schools is thus fully correspondent with the rising number of students.

Table 6 shows the number of computers used in teaching in municipal and county council upper secondary schools and in independent upper secondary schools.

The presented figures for upper secondary schools include the responses from more than a fourth of the school-governing bodies for local authority administered adult education that found it impossible to distinguish its adult education computers from its upper secondary school computers. In calculating the number of students per computer, the adult education students from these school-governing bodies have been added.

Table 6: Number of computers used in teaching in upper secondary school

Municipal + county council upper secondary schools	1993	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	Number	
Number of computers	24 191	40 547	53 168	65 075	72 561	112
Number of pupils per computer	11	8	7	5.3	4.2	

Independent upper secondary schools	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	974	1 413	2 692	4 913	183
Number of pupils per computer	6	5	2.8	2.8	

In upper secondary schools, too, computer density varies somewhat depending on type of municipality. In Table 7, the number of students per computer in municipal upper secondary schools is shown distributed according to the categories of the Swedish Association of Local Authorities. Here it is the big cities that have the highest number of students per computer, while the sparsely-populated municipalities and industrial municipalities have the lowest.

Table 7: Number of students per computer in municipal upper secondary schools according to municipality category

Municipal upper secondary schools	Students per computer 1993	Students per computer 1995	Students per computer 1997	Students per computer 1999	Students per computer 2001
Big cities	*13	10	10	8.8	5.5
Suburban municipalities	12	9	7	5.8	4.5
Large towns	11	8	6	4.7	4.2
Medium-large towns	10	8	6	5.2	4.4
Industrial municipalities	6	5	5	3.9	3.2
Rural municipalities	8	6	6	4.6	4.3
Sparsely-populated municipalities	7	5	5	4.3	2.9
Other large-size municipalities	11	7	6	5.0	4.2
Other small-size municipalities	6	4	5	3.9	3.7
Upper secondary school federation		8	7	4.8	3.7

* No available data for Göteborg in 1993

In Table 8 below, two factors are presented: the percentage of computers used for teaching in upper secondary schools that have Internet connections and the percentage that are incorporated in a local network. The percentage in local networks has successively increased and now comprises more than nine out of ten computers. An equally large percentage of computers have Internet connections. The proportion that are connected to the Internet is roughly the same in independent as in municipal upper secondary schools, while the proportion that has local network connections has decreased from 1999 to 2001 in the independent schools.

Table 8: Percentage of computers used in teaching in upper secondary schools that are...

Municipal + county council upper secondary school	1993 Percent	1995 Percent	1997 Percent	1999 Percent	2001 Percent
...connected to the Internet	..	..	66	87	93
...incorporated in local networks	48	63	78	88	92

Independent upper secondary school	1995 Percent	1997 Percent	1999 Percent	2001 Percent
...connected to the Internet	..	58	91	94
...incorporated in local networks	70	73	93	76

Table 9 shows the computers used in teaching in municipal upper secondary schools in relation to their connection to the Internet and local networks, distributed according to municipal category. Here it is the rural municipalities that have the lowest percentages in both cases. The big cities and sparsely-populated municipalities have the highest share of Internet-connected computers, while the number with local networks is highest in medium-large towns, sparsely-populated municipalities, and other small-size municipalities. The diffusion among municipal categories has decreased since 1997 in regard to both Internet-connected computers and computers in local networks.

Table 9: Percentage of computers used from 1997-2001 in municipal upper secondary schools in various municipal categories that are...

Municipal upper secondary school	...connected to the Internet			...incorporated in local networks		
	Percent	Percent	Percent	Percent	Percent	Percent
Municipal category	1997	1999	2001	1997	1999	2001
Big cities	50	94	96	84	97	94
Suburban municipalities	48	85	90	91	89	83
Large towns	70	89	95	81	86	92
Medium-large towns	68	86	94	77	88	96
Industrial municipalities	66	81	88	69	86	92
Rural municipalities	55	75	86	62	79	81
Sparsely-populated municipalities	53	87	96	80	89	96
Other large-size municipalities	61	89	90	76	92	92
Other small-size municipalities	77	94	95	77	96	96
Upper secondary school federation	48	85	95	76	86	92

Diagrams 3 and 4 show how the computers used in teaching in upper secondary schools are placed. More than half of the computers in municipal and county council upper secondary

schools, but only a little more than one in four in independent upper secondary schools, are placed in computer rooms. During the period from 1993-2001, however, the proportion of computer rooms has steadily decreased, reaching the figures for the year 2001 of 56 percent in municipal and 30 percent in independent upper secondary schools.

Despite this decline, the proportion of computers placed in computer rooms is still higher in upper secondary schools than in primary-secondary schools. The reason for this may be that since most of the upper secondary schools have special computer science programs, there are computer subjects or courses that require that all the students in the class have access to a computer at the same time.

Diagram 3: Placement of computers used in teaching in municipal and county council upper secondary schools

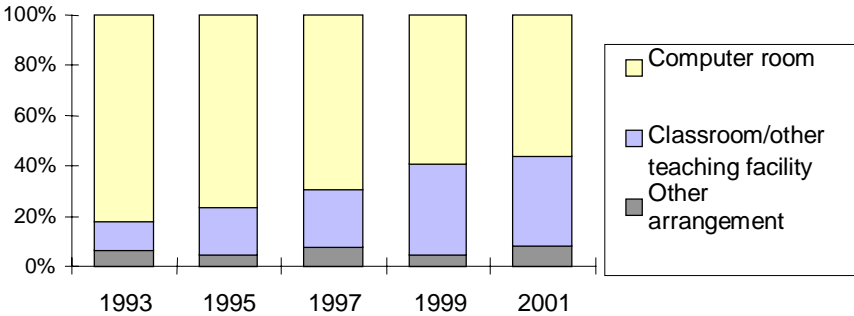
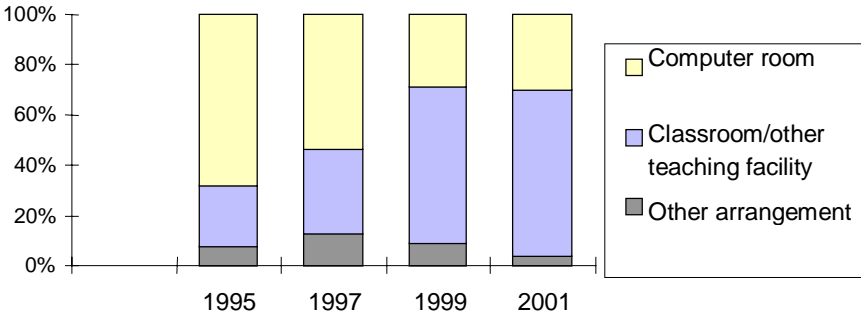


Diagram 4: Placement of computers used in teaching in independent upper secondary schools



Local authority administered adult education

According to the 2001 survey, there were just under 19,000 computers for use in teaching within local authority administered adult education. Since 1999, the number of computers used in teaching in local authority administered adult education has increased by 26 percent. If the number students at local authority administered adult education is adjusted to apply to full-time students, the number of full-time students per computer is 8.7. In 1999, the figure was 9.1 full-time students per computer. The number of students at local authority administered adult education has risen, in other words, at almost the same pace as the number of computers.

For more than one fourth of the various school-governing bodies, local authority administered adult education and upper secondary schools share the same computer equipment. In these cases, local authority administered adult education has been incorporated into the presentation of upper secondary schools.

Table 10 shows the number of computers used in teaching in local authority administered adult education.

Table 10: Number of computers for teaching in local authority administered adult education

Local authority administered adult education	1993	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	Number	(1999=100)
Number of computers	4 417	8 286	11 663	14 906	18 754	126
Number of students per computer		8	9	9.1	8.7	

In local authority administered adult education, too, computer density varies among municipalities of different kinds. In Table 11, the number of students in local authority administered adult education per computer is shown, distributed among the municipal categories of the Swedish Association of Local Authorities. The value of the comparison is to some extent uncertain, partly due to the fact that for more than a fourth of the municipalities, local authority administered adult education has been added to the figures for upper secondary schools. The variation from year to year for, e.g., the rural and sparsely-populated municipalities may be due to shifts in how the municipalities have reported the local authority administered adult education computers.

Table 11: Number of students per computer in local authority administered adult education, according to municipal category

Local authority administered adult education	Students per computer 1995	Students per computer 1997	Students per computer 1999	Students per computer 2001
Municipal category				
Big cities	*16	**13	**13.1	16.4
Suburban municipalities	7	7	7.5	5.5
Large towns	9	10	10.0	10.2
Medium-large towns	7	9	8.8	7.6
Industrial municipalities	7	9	7.9	5.5
Rural municipalities	4	12	8.1	7.5
Sparsely-populated municipalities	1	10	12.1	7.7

Other large-size municipalities	5	8	6.9	7.1
Other small-size municipalities	3	9	5.1	4.5
Upper secondary school federation	4	9	9.1	8.8

* No data available from Malmö for 1995.

** For 1997 and 1999, Stockholm's local authority administered adult education is included in the figures for upper secondary schools.

Table 12 shows the percentage of computers used in teaching within local authority administered adult education that are connected to the Internet and are incorporated in a local network. These percentages have risen and are now more than nine computers of ten.

Table 12: Percentage of computers used in teaching in local authority administered adult education that are...

Local authority administered adult education	1993	1995	1997	1999	2001
	Percent	Percent	Percent	Percent	Percent
...connected to the Internet	..	..	70	86	93
...incorporated in local networks	51	66	82	86	91

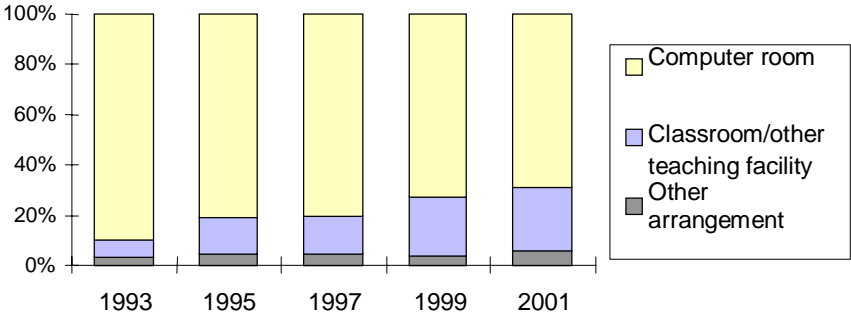
Table 13 shows the above table's variables distributed among municipal category. Here is it the suburban municipalities in both cases have the lowest percentages, while the upper secondary school federation and big cities have the highest. The differences have decreased, however, between 1999 and 2001.

Table 13: Percentage of computers used in teaching in local authority administered adult education 1999-2001 that are...

Local authority administered adult education	...connected to the Internet		...incorporated in local networks	
	Percent	Percent	Percent	Percent
Municipal category	1999	2001	1999	2001
Big cities	91	98	95	99
Suburban municipalities	75	89	75	83
Large towns	91	93	90	89
Medium-large towns	87	92	83	95
Industrial municipalities	78	93	82	90
Rural municipalities	80	95	83	85
Sparsely-populated municipalities	86	90	85	92
Other large-size municipalities	88	96	89	85
Other small-size municipalities	91	97	88	96
Upper secondary school federation	98	99	98	99

Diagram 5 shows how the computers used in teaching in local authority administered adult education are placed. More than two computers out of three are placed in a computer room. The percentage of computer rooms, however, has decreased successively during the period from 1993-2001.

Diagram 5: Placement of computers used in teaching in local authority administered adult education



Schools for the learning disabled

According to the questionnaire of 2001, a total of approximately 3,200 computers are used in teaching in schools for the learning disabled. Since 1999, the number of computers for teaching use in the municipal and county council schools for the learning disabled has increased by 27 percent. The number of pupils per computer in 2001 in the municipal and county council schools for the learning disabled has decreased from 1999 to 2001 from 4.5 to 3.4.

In cases where schools for the learning disabled and primary-secondary schools shared the same computer equipment, the figures for the schools for the learning disabled have been added to the figures for the primary-secondary schools. The same procedure was applied when, for example, upper secondary schools for the learning disabled used the same computers as the other upper secondary schools.

The fluctuations in increase from year to year regarding the number of computers used in teaching in schools for the learning disabled has been partly influenced by the variations in whether the computers from the schools for the learning disabled have been reported separately. In 1997, 82 percent of school authorities presented their schools for the learning disabled separately, while in 1999, the figure was 69 percent, and in 2001, 68 percent.

Table 14 shows the number of computers used in teaching in municipal and county council schools for the learning disabled and independent schools, respectively.

Table 14: Number of computers for teaching in schools for the learning disabled

Municipal+county council schools for the learning disabled	1993	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	Number	
Number of computers	1 294	1 821	2 271	2 429	3 082	127
Number of pupils per computer	8	6	4	4.5	3.4	

Independent schools for the learning disabled	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	48	47	63	90	143
Number of pupils per computer	5	7	4.7	4.4	

Table 15 below shows what percentage of the computers used in teaching in schools for the learning disabled have access to the Internet and what percentage are incorporated in a local network. The percentage in local networks has been low in schools for the learning disabled. However, it has successively increased, reaching a figure of more than one out of every other computer in 2001. The percentage that is connected to the Internet has also been low, but has now risen to two out of three computers. The figures for the few independent schools for the learning disabled vary greatly from year to year.

Table 15: Percentage of computers used for teaching in schools for the learning disabled that are...

Municipal + county council schools for the learning disabled	1993 Percent	1995 Percent	1997 Percent	1999 Percent	2001 Percent
...connected to the Internet	..	..	25	37	66
...incorporated in a local network	15	21	25	32	54

Independent schools for the learning disabled	1995 Percent	1997 Percent	1999 Percent	2001 Percent
...connected to the Internet	..	91	11	9
...incorporated in a local network	45	0	3	13

Diagrams 6 and 7 show how the computers used in teaching in schools for the learning disabled are placed. A majority of the computers, about six out of seven, are placed in classrooms/other teaching facilities. The percentage of computers placed in computer rooms declined during the period from 1993-99, then in 2001 the percentage increased slightly again.

Diagram 6: Placement of computers used for teaching in municipal and county council schools for the learning disabled

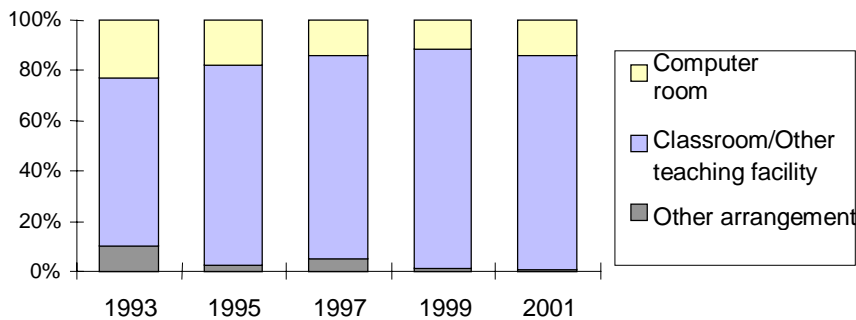
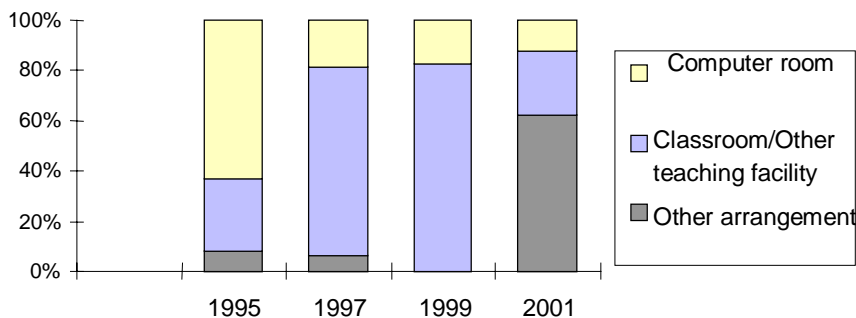


Diagram 7: Placement of computers used for teaching in independent schools for the learning disabled



Other types of schools

From Table 16, we can see the number of computers used in teaching in the following types of schools: adult education for the learning disabled, special schools, the National School for Adults, and the Sami school. The latter comprises six primary-secondary schools with the state Sami School Board as its school-governing body.

For 38 percent of the various school-governing bodies, adult education for the learning disabled shares its computers with local authority administered adult education and/or an upper secondary school. Adult education for the learning disabled is then incorporated in the reports from those types of schools.

For the National School for Adults, the number of “pupils per computer” is not included in the table, since this measurement cannot be considered to have any relevance in this school form.

Table 16: Number of computers for teaching in other types of schools

Adult education for the learning disabled	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Number of computers	388	314	580	517	89
Number of pupils per computer	6	8	4.3	5.3	

Special schools	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Number of computers	196	209	311	369	119
Number of pupils per computer	4	4	2.6	2.2	

National School for Adults	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Number of computers	25	52	43	70	163

Sami school	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Number of computers	16	40	10	42	
Number of pupils per computer	7	4	17.1	3.9	

Table 17 shows the percentage of computers used in teaching that are connected to the Internet and incorporated in local networks, respectively, in other types of schools. The percentages have successively increased and now reach almost two computers out of three in adult education for the learning disabled. In special schools and the National School for

Adults, practically all the computers are connected to the Internet and incorporated in local networks.

Table 17: Percentage of computers used in teaching in other types of schools that are...

Adult education for the learning disabled	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
...connected to the Internet	..	24	46	62
...incorporated in a local network	45	28	44	62

Special schools	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
...connected to the Internet	..	63	92	92
...incorporated in a local network	23	78	90	90

National School for Adults	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
...connected to the Internet	..	100	100	100
...incorporated in a local network	64	90	100	100

Sami school	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
...connected to the Internet	..	38	40	43
...incorporated in a local network	0	45	50	36

Diagrams 8-11 show how the computers used in teaching are placed in other types of schools. In adult education for the learning disabled, special schools, and the Sami school, a majority of the computers are placed in classrooms/other teaching facilities. In the National School for Adults, almost all the computers are in computer rooms.

Diagram 8: Placement of computers used in teaching in adult education for the learning disabled

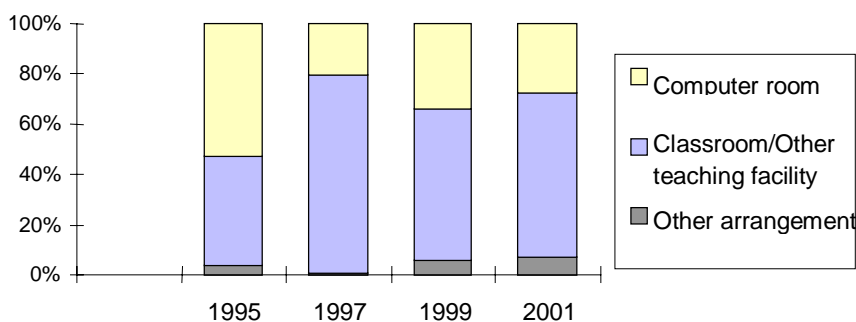


Diagram 9: Placement of computers used in teaching in special schools

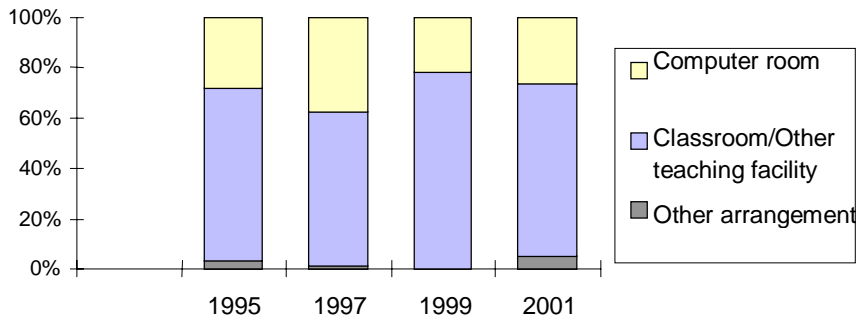


Diagram 10: Placement of computers used in teaching in the National School for Adults

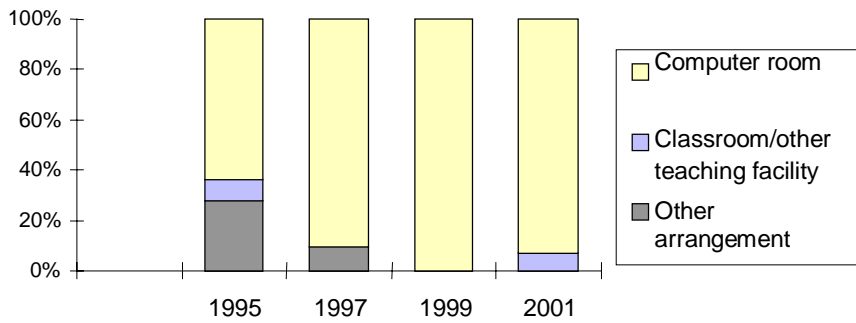
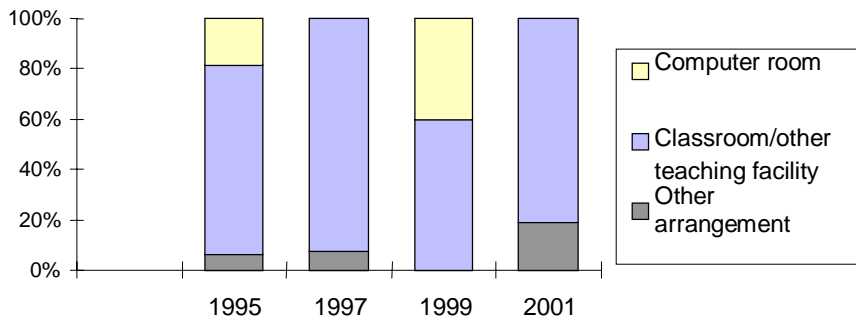


Diagram 11: Placement of computers used in teaching in the Sami school



3. Computers for teachers' use only

Question 1 of the questionnaire applied to computers for use by teachers only. Computers that were both for teaching and for teachers' use have been presented in Chapter 2, Computers used in teaching.

Primary-secondary school (*grundskola*)

According to the 2001 questionnaire, there is a total of approximately 25,000 computers for teacher use only in primary-secondary schools. Since 1999, the number of teachers' computers in municipal primary-secondary schools has increased by 84 percent. An important factor behind this substantial increase has been the ITiS campaign for teachers' computers. In the independent primary-secondary schools, the increase is even greater, which is partly explained by the expansion of independent schools.

Computer density in municipal primary-secondary schools has increased considerably – the number of teachers (recalculated into full-time posts) per computer for teachers' use is 3.2 in 2001, as opposed to 5.8 in 1999. In independent primary-secondary schools, the number of teachers per computer has decreased from 3.0 to 2.2.

Table 18 shows the number of computers for teachers' use in municipal and independent primary-secondary schools.

Table 18: Number of computers for teachers' use only in primary-secondary schools

Municipal primary-secondary school	1993	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	Number	(1999=100)
Number of computers	2 764	6 632	11 020	12 879	23 669	184
Number of teachers per computer	27	12	6	5.8	3.2	

Independent primary-secondary school	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Number of computers	268	517	766	1 475	193
Number of teachers per computer	6	4	3.0	2.2	

Upper secondary school

According to the 2001 questionnaire, there is a total of 21,000 computers for teacher use only in the upper secondary schools. Since 1999, the number of computers for teachers' use in municipal and county council upper secondary schools has increased by 31 percent and in the independent upper secondary schools by 69 percent.

Between 1999 and 2001, the number of teachers per computer has decreased from 1.5 to 1.2 in the municipal and county council upper secondary schools. In independent upper secondary schools, it has decreased from 1.1 to 0.9 teachers per computer.

Table 19 shows the number of computers for teachers' use in municipal/county council and independent upper secondary schools.

Table 19: Number of computers for teacher use only in upper secondary schools

Municipal + county council upper secondary schools	1993	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	Number	(1999=100)
Number of computers	3 404	8 531	12 677	15 416	20 224	131
Number of teachers per computer	7	3	2	1.5	1.2	

Independent upper secondary schools	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	(1999=100)
Number of computers	235	331	585	987	169
Number of teachers per computer	2	1	1.1	0.9	

Local authority administered adult education (*komvux*)

According to the 2001 questionnaire, there is a total of approximately 3,500 computers for teachers' use only in local authority administered adult education. Since 1997, the number of computers for teachers' use in this kind of education has increased by 41 percent.

The number of teachers per computer has decreased from 2.3 to 1.7 between 1999 and 2001.

Table 20 shows the number of computers for teachers' use in local authority administered adult education.

Table 20: Number of computers for teachers' use only in local authority administered adult education

Local authority administered adult education	1993	1995	1997	1999	2001	Index 2001
	Number	Number	Number	Number	Number	(1999=100)
Number of computers	471	1 432	2 364	2 487	3 507	141
Number of teachers per computer	9	2	2	2.3	1.7	

Schools for the learning disabled

According to the 2001 survey, there is a total of over 650 computers for teachers' use only in school for the learning disabled. Since 1999, the number of computers for teachers' use in municipal and county council schools for the learning disabled has increased by 88 percent.

As in primary-secondary schools, the ITiS campaign for computers for teachers' use is part of the explanation behind this substantial increase.

The number of teachers per computer in municipal and county council schools for the learning disabled has decreased from 7.4 to 3.8 between 1999 and 2001. Independent schools for the learning disabled have the same computer density as the municipal schools in 2001. For the years prior to 1999, reliable information on the number of teachers per computer is lacking.

Table 21 shows the number of computers for teachers' use in municipal/county council and independent schools for the learning disabled, respectively.

Table 21: Number of computers for teachers' use only in schools for the learning disabled

Municipal+county council schools for the learning disabled	1993	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	Number	
Number of computers	109	186	356	335	631	188
Number of teachers per computer	29	15	7	7.4	3.8	

Independent schools for the learning disabled	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	17	19	24	27	113
				3.8	

Other types of schools

Table 22 shows the number of computers for teachers' use in the following types of schools: adult education for the learning disabled, special schools, the National School for Adults, and the Sami school.

Table 22: Number of computers for teachers' use only in other types of schools

Adult education for the learning disabled	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	64	57	94	75	80
Number of teachers per computer				1.6	

Special schools	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	59	40	90	121	134
Number of teachers per computer	5	7	3.3	2.5	

National School for Adults	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	10	80	52	96	185

Sami school	1995	1997	1999	2001	Index 2001 (1999=100)
	Number	Number	Number	Number	
Number of computers	6	6	0	4	
Number of teachers per computer	4	4		6.9	

Internet-connected computers for teachers' use

The questionnaires of 1999 and 2001 asked how many of the computers for teachers' use only had access to the Internet. The percentages in 1999 and 2001 for the various kinds of schools are shown in Table 23 below. In the primary-secondary schools, four out of five computers for teachers' use are now online. In the upper secondary schools and local authority administered adult education, the figure is nine out of ten, with three out of four in schools for the learning disabled.

Table 23: Percentage of computers for teachers' use only that are connected to the Internet

Type of school	1999 Percent	2001 Percent
Municipal primary-secondary school	69	80
Independent primary-secondary school	68	77
Municipal+county council upper secondary school	89	92
Independent upper secondary school	90	92
Local authority administered adult education	87	91
Municipal+county council schools for the learning disabled	63	75
Independent schools for the learning disabled	33	41
Adult education for the learning disabled	78	88
Special schools	93	70
National School for Adults	100	100
Sami school	..	0

4. The Internet and joint municipal schoolnets / WAN

The Internet

The percentage of computers used in teaching that have access to the Internet was presented here under each type of school in Chapter 2, and the computers for teachers' use in Chapter 3. Questions 7-8 of the questionnaire concerned the number of *schools* connected to the Internet.

Table 24 shows the percentage of schools in each category of school that has access to the Internet.

In 2001, nine out of ten municipal primary-secondary and upper secondary schools had Internet dial-ups. The independent schools present somewhat lower percentages than the municipal. In local authority administered adult education, approximately three out of four school have access to the Internet, while the figure for in non-adult and adult education for the learning disabled is fewer than every other. The changes between 1999 and 2001 are generally inconsiderable. However, for local authority administered adult education, schools for the learning disabled, and adult education for the learning disabled, the changes are somewhat uncertain due to inadequate information in 1999 on the number of schools in these school forms.

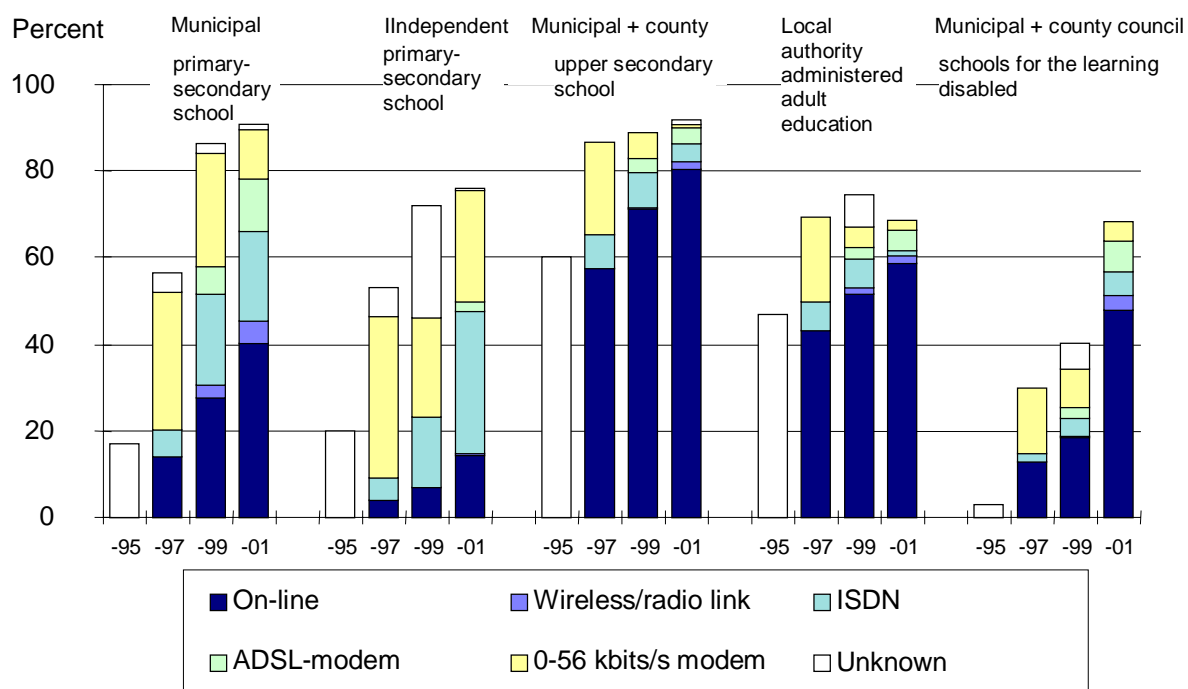
Table 24: Access to the Internet

	Percentage of schools with Internet connections			
	1995 Percent	1997 Percent	1999 Percent	2001 Percent
Municipal primary-secondary school	17	56	86	90
Independent primary-secondary school	20	53	72	83
Municipal+county council upper secondary school	59	85	89	92
Independent upper secondary school	40	69	81	84
Local authority administered adult education	47	72	≈75	72
Municipal+county council schools for the learning disabled	3	31	≈41	42
Independent schools for the learning disabled	23	39	29	38
Adult education for the learning disabled	14	19	≈48	46
Special schools	38	86	100	100
National School for Adults	50	100	100	100
Sami school	0	100	17	100

In municipal upper secondary schools, local authority administered adult education, and schools for the learning disabled, most of the schools had access to an on-line Internet connection. In primary-secondary schools, the distribution between on-line and other connections is more even. On-line connections have successively increased in all school forms during the time from 1997-2001. In primary-secondary schools, ISDN connections have also increased, while the number of 0-56 kbits/s modems has decreased. For the independent schools, 0-56 kbits/s modems and ISDN dominate. The distribution of type of connection for the five largest types of schools is shown in Diagram 12 below. Here, too, the total level in

1999 is somewhat uncertain regarding local authority administered adult education and schools for the learning disabled.

Diagram 12: Percentage of schools with Internet connections



Tables 25 and 26 show the capacity and bandwidth for each type of school. More than two out of three local authority administered adult education schools, municipal schools for the learning disabled, and adult education for the learning disabled that have an Internet connection are connected via a municipal node. For primary-secondary schools and upper secondary schools, the corresponding figure is about three out of four. The changes from 1999 to 2001 are not entirely unambiguous. Independent schools, for natural reasons, often have their connection coming directly to the school.

Table 25: Capacity of the Internet connection

	Percentage of school with connections...					
	...directly to the school		...via a joint municipal node		no data available	
	1999 Percent	2001 Percent	1999 Percent	2001 Percent	1999 Percent	2001 Percent
Municipal primary-secondary school	26	18	67	72	7	10
Independent primary-secondary school	48	33	3	6	49	62
Municipal+county council upper secondary school	20	12	80	78	0	10
Independent upper secondary school	61	53	2	8	37	39
Local authority administered adult education	16	11	72	70	13	19
Municipal+county council schools for the learning disabled	25	15	65	69	10	16

Independent schools for the learning disabled	20	55	0	0	80	45
Adult education for the learning disabled	26	15	64	66	10	20
Special schools	38	75	25	13	38	13
National School for Adults	50	100	0	0	50	0
Sami school	0	17	0	0	100	83

As for the Internet connection's bandwidth, it is often higher than 1 Mbit/s when the connection goes through a joint municipal node, while connections that go directly to the school are often under 1 Mbit/s. The figures for 2001 are shown in Table 26 below. Comparable figures for 1999 are not available.

Table 26: Capacity of the Internet connection (bandwidth)

2001	Percentage of schools with connections...				
	...directly to the school		...via joint municipal node		No data available
	bandwidth max. 1 Mbit/sec	bandwidth more than 1 Mbit/sec	bandwidth max. 1 Mbit/sec	bandwidth more than 1 Mbit/sec	
	Percent	Percent	Percent	Percent	Percent
Municipal primary-secondary school	15	3	22	50	10
Independent primary-secondary school	26	7	2	4	62
Municipal+county council upper secondary school	6	6	11	67	10
Independent upper secondary school	34	19	0	8	39
Local authority administered adult education	4	7	16	54	19
Municipal+county council schools for the learning disabled	12	3	14	55	16
Independent schools for the learning disabled	55	0	0	0	45
Adult education for the learning disabled	9	6	10	55	20
Special schools	63	13	13	0	13
National School for Adults	50	50	0	0	0
Sami school	0	17	0	0	83

Joint municipal schoolnet / WAN

Question 9 of the questionnaire concerned joint municipal schoolnets / WAN (Wide Area Network). Table 27 shows the percentage of schools according to school type that were incorporated in the joint municipal network in 1999 and 2001, while Table 28 shows the percentual distribution of various school-governing bodies among the most common bandwidths.

Two-thirds of the municipal primary-secondary schools, but even more, three-fourths of the upper secondary schools, were incorporated in WAN, which is an increase since 1999,

especially for the primary-secondary schools. The special schools have their own nationwide internal network. For local authority administered adult education, schools for the learning disabled, and adult education for the learning disabled, the proportion of WAN-incorporated schools in 2001 is almost every other school, while the changes from 1999 are somewhat uncertain.

Table 27: Percentage of schools incorporated in a joint municipal schoolnet / WAN

Percentage of schools incorporated in a joint municipal schoolnet / WAN	1999	2001
	Percent	Percent
Municipal primary-secondary school	44	66
Independent primary-secondary school	6	4
Municipal+county council upper secondary school	74	78
Independent upper secondary school	3	9
Local authority administered adult education	≈58	52
Municipal+county council schools for the learning disabled	≈28	44
Independent schools for the learning disabled	0	0
Adult education for the learning disabled	≈49	49
Special schools	75	88
National School for Adults	0	50
Sami school	0	0

For the municipal school-governing bodies with a joint municipal network, the most common bandwidth among the schools in 2001 is greater than 2 Mbits/s for every other school-governing authority when it comes to primary-secondary schools, for more than every other when it comes to upper secondary schools, and for about two out of three school-governing bodies in other municipal school forms. Since 1999, the percentage with more than 2 Mbits/s has increased significantly throughout.

Table 28: School-governing bodies with schools that are incorporated in joint municipal schoolnets / WAN: most common bandwidth between schools

Most common bandwidth between schools	1999		2001	
	Max. 2 Mbits/s	More than 2 Mbits/s	Max. 2 Mbits/s	More than 2 Mbits/s
Percentage of school-governing bodies with WAN				
Municipal primary-secondary school	64	31	48	48
Municipal+county council upper secondary school	49	45	36	57
Local authority administered adult education	54	42	31	64
Municipal+county council schools for the learning disabled	57	36	33	63
Adult education for the learning disabled	52	43	32	68
Special schools	83	0	100	0

5. E-mail

Questions 4-6 and 10-11 had to do with e-mail. The school-governing bodies were asked how many pupils and teachers, respectively, had access to e-mail, whether this was with or without a personal e-mail address, and how many of these could access their e-mail address from outside the school's network. These questions were asked in the 1999 and 2001 questionnaires.

According to the questionnaire responses, almost two-thirds of all municipal primary-secondary school pupils have access to e-mail through their schools. For the upper secondary school students, the figure is four out of five, while for local authority administered adult education and schools for the learning disabled, it is one third. Independent schools have slightly lower percentages. In most types of schools, the percentages have increased relative to each other between 1999 and 2001. The percentages for the various school forms are shown in Table 29 below.

Table 29: Percentage of pupils with access to e-mail

Type of school:	Percent Percent	
Municipal primary-secondary school	1999	2001
with a personal e-mail address	25	50
with access to e-mail w/out a personal address	14	12
Sum	39	62
with access outside the school's network as well	16	40
Independent primary-secondary school	1999	2001
with a personal e-mail address	23	34
with access to e-mail w/out a personal address	14	19
Sum	37	53
with access outside the school's network as well	12	25
Mun+county council upper secondary schools	1999	2001
with a personal e-mail address	54	78
with access to e-mail w/out a personal address	4	3
Sum	59	81
with access outside the school's network as well	38	67
Independent upper secondary schools	1999	2001
with a personal e-mail address	51	52
with access to e-mail w/out a personal address	13	8
Sum	65	60
with access outside the school's network as well	39	44
Local authority administered adult education	1999	2001
with a personal e-mail address	29	29
with access to e-mail w/out a personal address	6	6
Sum	34	35

with access outside the school's network as well	19	23
Mun+county council school for the learning disabled	1999	2001
with a personal e-mail address	13	28
with access to e-mail w/out a personal address	9	8
Sum	22	36
with access outside the school's network as well	9	26
Independent school for the learning disabled	1999	2001
with a personal e-mail address	0	20
with access to e-mail w/out a personal address	6	16
Sum	6	36
with access outside the school's network as well	2	0
Adult schools for the learning disabled	1999	2001
with a personal e-mail address	4	10
with access to e-mail w/out a personal address	11	2
Sum	16	12
with access outside the school's network as well	13	8
Special school	1999	2001
with a personal e-mail address	16	48
with access to e-mail w/out a personal address	27	4
Sum	43	52
with access outside the school's network as well	8	48
Sami school	1999	2001
with a personal e-mail address	0	93
with access to e-mail w/out a personal address	12	2
Sum	12	96
with access outside the school's network as well	0	89

According to the questionnaire, more than four out of five teachers in municipal primary-secondary schools have access to e-mail through their schools; in independent schools, somewhat fewer. Of the upper secondary school teachers, more than nine out of ten have e-mail, in local authority administered adult education, three out of four, in schools for the learning disabled, two out of three. The percentages have increased between 1999 and 2001 within all types of schools. Table 30 below shows the percentages for the various school forms.

Table 30: Percentage of teachers with access to e-mail

Type of school:	Percent	
	1999	2001
Municipal primary-secondary school	1999	2001

with a personal e-mail address	51	75
with access to e-mail w/out a personal address	14	9
Sum	66	84
with access outside the school's network as well	34	61
Independent primary-secondary schools	1999	2001
with a personal e-mail address	32	44
with access to e-mail w/out a personal address	22	27
Sum	55	71
with access outside the school's network as well	20	40
Mun+county council upper secondary schools	1999	2001
with a personal e-mail address	80	89
with access to e-mail w/out a personal address	2	3
Sum	82	92
with access outside the school's network as well	55	80
Independent upper secondary schools	1999	2001
with a personal e-mail address	59	77
with access to e-mail w/out a personal address	14	19
Sum	73	97
with access outside the school's network as well	42	65
Local authority administered adult education	1999	2001
with a personal e-mail address	64	67
with access to e-mail w/out a personal address	3	7
Sum	67	74
with access outside the school's network as well	45	56
Mun+county council school for the learning disabled	1999	2001
with a personal e-mail address	28	61
with access to e-mail w/out a personal address	9	6
Sum	38	67
with access outside the school's network as well	19	51
Independent school for the learning disabled		2001
with a personal e-mail address		32
with access to e-mail w/out a personal address		18
Sum		50
with access outside the school's network as well		9
Adult schools for the learning disabled	1999	2001
with a personal e-mail address	44	75
with access to e-mail w/out a personal address	3	2
Sum	47	76
with access outside the school's network as well	31	65

Special school	1999	2001
with a personal e-mail address	84	99
with access to e-mail w/out a personal address	5	1
Sum	89	100
with access outside the school's network as well	4	87
National School for Adults		2001
with a personal e-mail address		93
with access to e-mail w/out a personal address		0
Sum		93
with access outside the school's network as well		93
Sami school	1999	2001
with a personal e-mail address	0	79
with access to e-mail w/out a personal address	13	21
Sum	13	100
with access outside the school's network as well	0	81

Table 31 shows the responses of the school-governing bodies to the whereabouts of their e-mail server. For municipal primary-secondary schools, approximately three out of four answered that they had a joint municipal server. For upper secondary schools and local authority administered adult education, the figure was over half. Some independent schools indicated local servers at the school or some other arrangement, but a majority of them left the question unanswered.

Table 31: Access to e-mail server
Percentage of school-governing bodies with an e-mail server...

Type of school:	Percent	Percent
Municipal primary-secondary schools	1999	2001
located locally at the schools	16	13
jointly municipal	58	73
arranged in other way	23	13
Independent primary-secondary schools	1999	2001
located locally at the schools	18	20
jointly municipal	2	8
arranged in other way	20	19
Mun+county council upper secondary schools	1999	2001
located locally at the school	29	22
jointly municipal	46	53
arranged in other way	13	10
Independent upper secondary schools	1999	2001

located locally at the school	32	25
jointly municipal	3	6
arranged in other way	12	18

Local authority administered adult education 1999 2001

located locally at the school	21	22
jointly municipal	45	55
arranged in other way	17	7

Municipal council school for the learning disabled 1999 2001

located locally at the school	13	8
jointly municipal	45	39
arranged in other way	16	4

Independent school for the learning disabled 1999 2001

located locally at the school	6	10
jointly municipal	0	3
arranged in other way	0	10

Adult schools for the learning disabled 1999 2001

located locally at the school	5	16
jointly municipal	26	47
arranged in other way	5	3

Special school 1999 2001

located locally at the school	38	33
jointly municipal	50	33
arranged in other way	0	0

National School for Adults 1999 2001

located locally at the school	100	100
jointly municipal	0	0
arranged in other way	0	0

Sami school 1999 2001

located locally at the school	0	0
jointly municipal	0	0
arranged in other way	0	100

Table 32 shows the responses of the school-governing bodies to the question of whether they have an e-mail catalog service with the identities of teachers/pupils. For the municipal primary-secondary schools, three out of four school-governing bodies stated that they have an e-mail catalog, in which case it was usually jointly municipal. For the upper secondary schools and local authority administered adult education, just under two out of three had some form of catalog service, but then the catalog was usually not available locally at the school. The percentages have increased quite fairly considerably between 1999 and 2001.

**Table 32: Access to e-mail catalog service with the identities of teachers/pupils
Percentage of school-governing bodies with an e-mail server...**

Type of school	Percent	Percent
	t	
Municipal primary-secondary schools	1999	2001
located locally at the school	12	12
jointly municipal	35	64
Total	47	75
no catalog service	51	21
no information available	2	4
Independent primary-secondary schools	1999	2001
located locally at the school	8	12
jointly municipal	1	6
Total	9	17
no catalog service	41	37
no information available	50	46
Mun+county council upper secondary schools	1999	2001
located locally at the school	19	20
jointly municipal	29	48
Total	48	64
no catalog service	37	16
no information available	15	20
Independent upper secondary schools	1999	2001
located locally at the school	23	23
jointly municipal	0	3
Total	23	26
no catalog service	21	26
no information available	56	49

Local authority administered adult education 1999 2001

located locally at the school	12	17
jointly municipal	33	47
Total	45	61
no catalog service	41	19
no information available	14	20

Municipal council school for the learning disabled 1999 2001

located locally at the school	9	6
jointly municipal	28	36
Total	37	42
no catalog service	42	10
no information available	21	48

Independent school for the learning disabled 1999 2001

located locally at the school	0	13
jointly municipal	0	3
Total	0	16
no catalog service	12	23
no information available	88	61

Adult schools for the learning disabled 1999 2001

located locally at the school	3	11
jointly municipal	17	40
Total	20	49
no catalog service	23	13
no information available	57	38

Special school 1999 2001

3 school-governing bodies*), 8 schools

located locally at the school	50	0
jointly municipal	38	33
Total	88	33
no catalog service	0	33
no information available	12	33

*) prior to 2000: 8 school-governing bodies

National School for Adults 1999 2001

1 school-governing body, 2 schools

located locally at the school	100	50
jointly municipal	0	0
Total	100	50
no catalog service	0	50
no information available	0	0

Sami school 1999 2001

1 school-governing body, 6 schools

located locally at the school	0	100
jointly municipal	0	0

Total	0	100
no catalog service	0	0
no information available	100	0

6. IT strategy/action program

Question 12 of the questionnaire was: *Does the school-governing body have an IT strategy/action program for the computer field?* The answer pertained to plans that had been adopted by a school board or committee. There were three answers to choose from:

YES, a separate program

YES, incorporated in the school plan

NO

Table 33 and Diagram 13 show the answers according to the sub-groups of school-governing bodies and types of schools in 2001, which are then compared to the responses from 1993, 1995, 1997 and 1999. Up to 1997, there was an increase in the percentage of school-governing bodies that stated that they had a program. Between 1997 and 2001, no further appreciable increases took place. In local authority administered adult education, the percentage with an IT plan even decreased. In municipal primary-secondary schools, four out of five school-governing bodies answered that they have a program, while the figure for upper secondary schools, local authority administered adult education and schools for the learning disabled was close to two out of three. Independent schools have a low percentage of schools that have adopted programs, less than a third.

For a few municipalities, the answers for primary-secondary school were not interpretable on the school-governing body (municipality) level, since the answers from different sub-municipalities varied.

Table 33: School-governing bodies with an adopted an IT-strategy/action program for the computer field

Municipal primary-secondary school	1993	1995	1997	1999	2001
	Percent	Percent	Percent	Percent	Percent
Separate adopted plan	11	35	68	67	65
Part of the school plan	6	10	9	12	15
No plan	75	43	15	18	15
No information available	8	10	5	2	3
Different answers from sub-municipalities		3	3	1	2
Sum	100	100	100	100	100

Independent primary-secondary school	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
Separate adopted plan	16	18	15	19
Part of the school plan	14	12	9	9
No plan	62	56	36	38
No information available	7	14	40	34
Sum	100	100	100	100

Mun+county council upper secondary school	1993	1995	1997	1999	2001
	Percent	Percent	Percent	Percent	Percent
Separate adopted plan	11	35	55	52	55
Part of the school plan	5	8	10	11	13
No plan	62	42	17	19	19
No information available	22	14	18	18	14
Sum	100	100	100	100	100

Independent upper secondary school	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
Separate adopted plan	22	16	22	21
Part of the school plan	6	13	5	4
No plan	57	55	29	47
No information available	14	15	44	28
Sum	100	100	100	100

Local authority administered adult education	1993	1995	1997	1999	2001
	Percent	Percent	Percent	Percent	Percent
Separate adopted plan	8	32	62	54	47
Part of the school plan	3	6	9	14	13
No plan	41	40	15	18	21
No information available	48	22	14	14	19
Sum	100	100	100	100	100

Mun+county council school for the learning disabled	1993	1995	1997	1999	2001
	Percent	Percent	Percent	Percent	Percent
Separate adopted plan	5	40	59	57	53
Part of the school plan	5	13	10	12	13
No plan	62	28	11	14	12
No information available	28	19	19	17	23
Sum	100	100	100	100	100

Independent school for the learning disabled	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
Separate adopted plan	0	6	0	12
Part of the school plan	8	0	0	12
No plan	85	56	29	59
No information available	8	38	71	18
Sum	100	100	100	100

Adult schools for the learning disabled	1995	1997	1999	2001
	Percent	Percent	Percent	Percent
Separate adopted plan	32	39	32	39
Part of the school plan	10	7	10	10
No plan	36	13	7	13
No information available	23	41	51	38
Sum	100	100	100	100

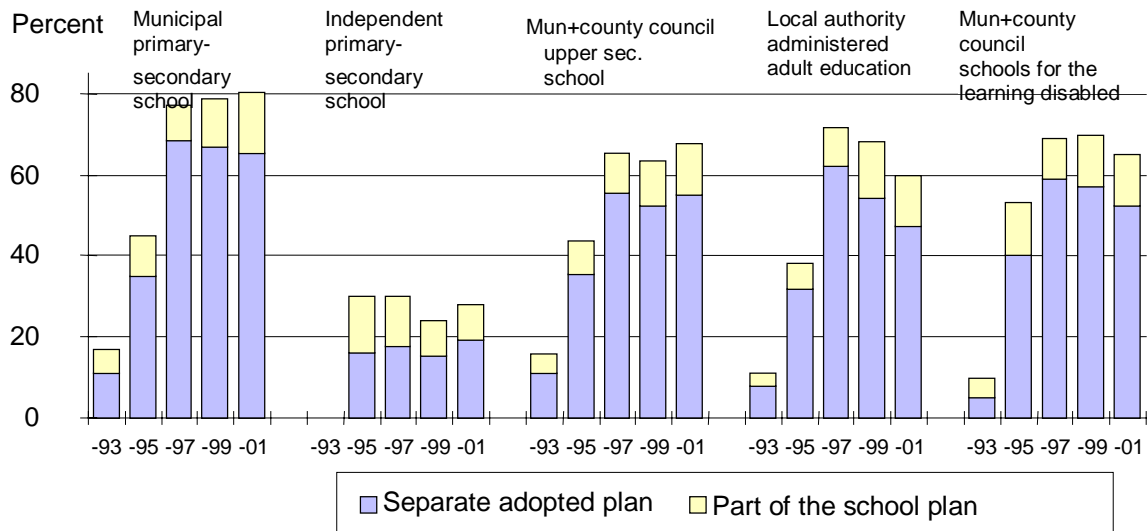
Special school	1995	1997	1999	2001
3 school-governing bodies*), 8 schools	Percent	Percent	Percent	Percent
Separate adopted plan	13	43	50	33
Part of the school plan	0	0	0	0
No plan	50	43	13	33
No information available	38	14	38	33
Sum	100	100	100	100

*) prior to 2000: 8 school-governing bodies

National School for Adults 1 school-governing body, 2 schools	1995 Percent	1997 Percent	1999 Percent	2001 Percent
Separate adopted plan	0	0	100	50
Part of the school plan	0	0	0	0
No plan	100	100	0	50
No information available	0	0	0	0
Sum	100	100	100	100

Sami school 1 school-governing body, 6 schools	1995 Percent	1997 Percent	1999 Percent	2001 Percent
Separate adopted plan	0	100	0	100
Part of the school plan	0	0	0	0
No plan	100	0	0	0
No information available	0	0	100	0
Sum	100	100	100	100

Diagram 13: Percentage of school-governing bodies with an IT strategy/action program for the computer field



7. Response frequencies

The 2001 survey was sent to a total of 2,124 questionnaire recipients, distributed among seven types of schools and six kinds of school-governing bodies. The number of answers was 2,005, which makes a response frequency of 94.4 percent. These 94.4 percent represent approximately 97.5 percent of the total number of pupils attending the investigated types of schools.

The response frequencies varied from group to group, as can be seen in Table 34. That the number of responses from municipal primary-secondary schools is larger than the number of municipalities in Sweden is due to the fact that, for some municipalities, the questionnaire was sent to sub-municipal councils in charge of schools at the primary-secondary level.

Table 34: Response frequencies for various sub-groups

Response frequencies	1993		1995		1997		1999		2001	
	Number of responses	Percent	Number of responses	Percent	Number of responses	Percent	Number of responses	Percent	Number of responses	Percent
Municipal primary-secondary school	258	90	349	97.2	388	96.8	379	98.7	366	96.7
Independent primary-secondary school			206	95.4	294	92.7	301	92.3	390	91.8
Mun+county council upper secondary school	201	87	277	93.2	291	95.7	286	97.6	273	96.5
Independent upper secondary school			70	90.9	83	90.2	88	81.5	132	90.4
Local authority administered adult education	231		281	93.4	290	96.0	290	97.3	282	96.2
Mun+county council school for the learning disabled	112		151	90.4	257	93.5	255	98.1	333	94.1
Independent school for the learning disabled			15	88.2	24	96.0	25	92.6	28	90.3
Adult schools for the learning disabled			175	91.6	228	93.8	230	93.5	195	95.1
Special school			8	100.0	7	87.5	8	100.0	3	100.0
National School for Adults			1	100.0	2	100.0	1	50.0	2	100.0
Sami school			1	100.0	1	100.0	1	100.0	1	100.0
Total			1 534	93.8	1 865	94.7	1 864	95.4	2 005	94.4

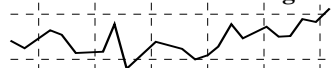
The response frequencies in 1995, 1997, 1999 and 2001 must be considered very high. The reliability of the material should be quite good. Comparability with the 1993 survey, however, is somewhat less certain, but should be relatively good for most of the questions as long as the comparison is limited to the national level.

In 1993, there was probably a “partial drop-out” of unknown extent, consisting of the fact that for some school-governing bodies, the responses did not refer to all of the schools within the various school forms. In 1995 and 1997, efforts were made to calculate the extent of this drop-out. According to the responses in 1997, this “partial drop-out” comprised 162 schools, making up 1.6 percent of the total number of pupils in all types of schools and school-governing bodies.

In 1999 and 2001, the respondents were urged to send in complete answers, i.e., covering all the schools of the particular school-governing body. It is therefore assumed that there has been no partial drop-out in 1999 and 2001.

8. Survey questionnaire

LK Statistik & utredningar



Computers in the Schools 2001

Complete questions and explanations for the questionnaire report

Check first that you are answering the questionnaire for the correct type of school. The type is printed on the label in the upper right-hand corner. You should have received one report form for each type of school. If several types of schools are integrated in terms of computers, please make a note of this on the extra lines below the label.

Page 1 **Compilation of answers from the schools**

Question 1 In total, how many computers were available for teachers' use only, i.e., for teachers' pedagogical work for such things as preparation and evaluation of lectures, correcting tests, constructing teaching material or databases, etc., as of February 1, 2001?

Report only computers that the school-governing body (employer) has supplied for teacher use only. Computers that are also used in teaching are to be reported under Question 2. After the total number of computers for teachers' use, make a note of how many of them are laptops and how many have connections to the Internet.

Question 2 In total, how many computers were available for use in teaching in the schools as of February 1, 2001?

Computers within each institution intended for teacher use only or other computers that are used by teachers for their personal work are to be reported under Question 1. After the total number of computers used in teaching, make a note of how many of them are laptops, how many are connected to the Internet, and how many are incorporated in local networks.

Question 3 Where are the computers used in teaching placed?

Please report here how many of the total number of computers used in teaching according to Question 2 are placed in separate computer rooms and how many are placed in other teaching facilities.

Questions 4-5 How many teachers and pupils, respectively, have access to e-mail provided by the school?

Please report here how many teachers and pupils, respectively, have access to e-mail in school, including how many have a personal e-mail address and how many have access to e-mail but without a personal e-mail address.

The purpose of the question is not for the schools to investigate the private arrangements of pupils and teachers, but to see what the schools or school-governing bodies have provided for their pupils and staff. Various technological solutions may occur, from a school's own e-mail server to Internet-based e-mail.

Question 6 **How many teachers and pupils, respectively, have access to e-mail even outside the school's network?**

Please report here how many teachers and pupils, respectively, have access to their school e-mail addresses even outside the school's network, regardless of technological solution.

Page 2 Questions to be answered by each school-governing body

Note! Answer page 2 for the same type of school(s) as page 1!

For questions on the “number of schools,” the same definition of “school” is intended as the one for reports to Statistics Sweden.

Question 7 **How many schools have access to the Internet?**

The object is to determine how many schools have access to the Internet, and what technology is used for the connection. The alternatives are modems with a capacity of up to 56 kbits/s, ADSL modems (Asymmetric Digital Subscriber Line), ISDN (Integrated Services Digital Network), wireless connections via a radio link, or an on-line connection.

Question 8 **The capacity of the Internet connection (bandwidth)**

The number of school with their own Internet connections coming directly to the school, and the number of schools with Internet connections via a joint municipal node. In addition, for each alternative, the number of schools with two different bandwidths for the Internet connection – maximum 1 Mbit/s or more than 1 Mbit/s.

Question 9 **Occurrence of joint municipal schoolnets / WAN (Wide Area Network)**

The number of schools incorporated in a joint municipal network, and the most common capacity (bandwidth) in the network between the schools – maximum 2 Mbits/s or more than 2 Mbits/s.

Question 10 **E-mail server ...**

Indicate here whether the school’s e-mail gets sent via an individual server at each school, via a joint municipal server, or by some other arrangement, e.g., via the Internet. More than one alternative is allowed if several solutions are used, e.g., one for pupils and another for teachers.

Question 11 **Is there an e-mail catalog service (address book) with identities for teachers/pupils?**

If a catalog service is available, please indicate if it is available locally at the school or if it is jointly municipal.

Question 12 **Does the school-governing body (municipal council, county council, independent schools, special schools and the National School for Adults) IT strategy or action program for the computer field?**

The question applies only to programs that have been officially adopted by a board or committee.

NOTE! The reported information must include all the schools of all types that the school-governing body is in charge of.

For any questions about gathering and presenting the answers to these questions, please phone or e-mail to:

Sten Johansson

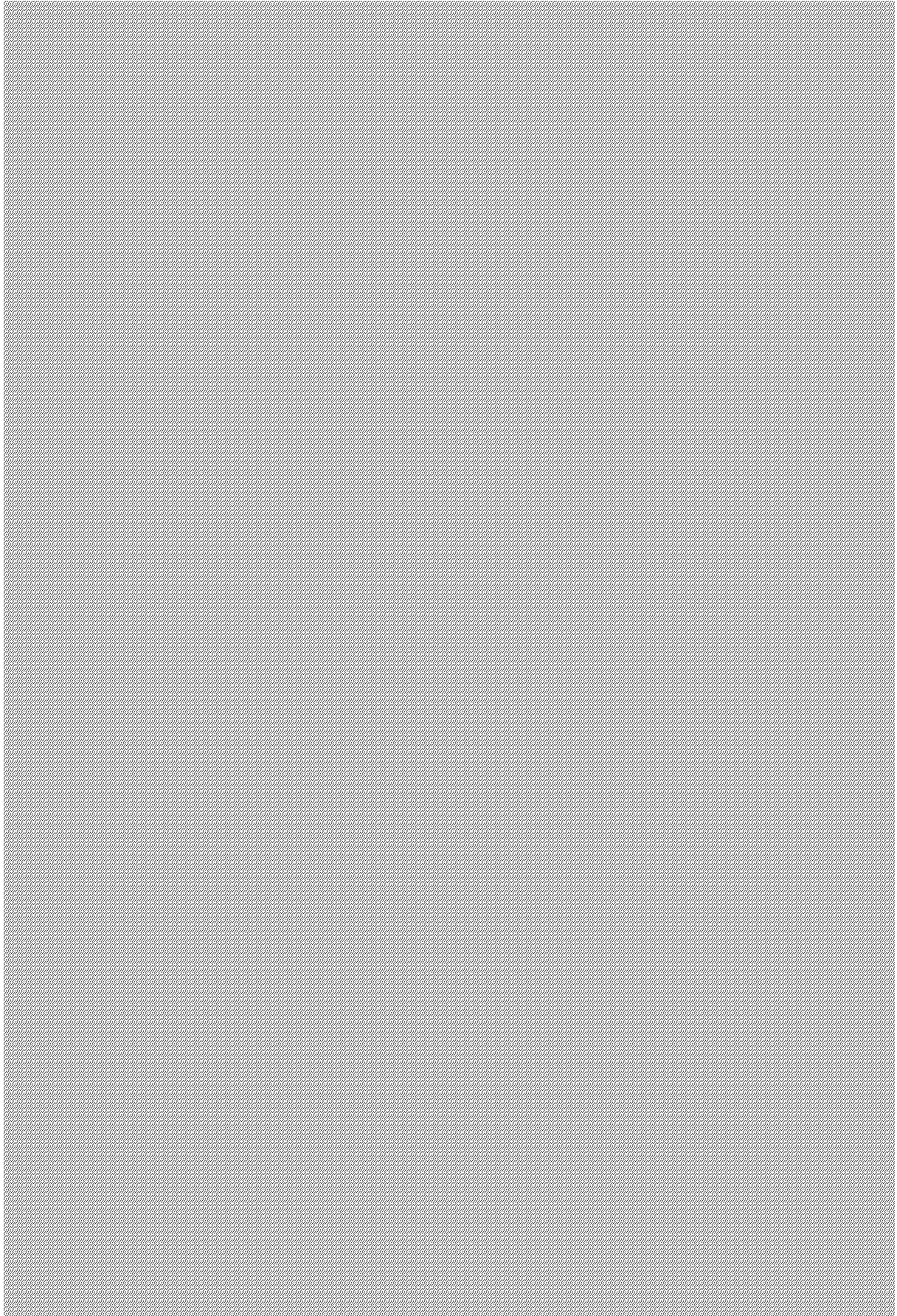
013 - 20 88 52

sten.johansson@lkstat.linkoping.se

For questions on ITiS, phone or e-mail to:
Lena Elfvingsson

08 - 405 29 88

[lena.elfvingsson@education.ministry.se](mailto:lana.elfvingsson@education.ministry.se)



Redovisningsformulär för "SKOLANS DATORER 2001"

Sida 2. Frågor som besvaras av respektive skolhuvudman

OBS! Svaret ska avse samma skolform/skolformer som sidan 1.

Samma definition på vad som är en skola som i rapporteringen till Statistiska Centralbyrån

Fråga 7						
Hur många skolor har tillgång till Internet...						
	Totalt antal skolor med tillgång till Internet F70	därav via... modem 0-56 kbits/s F71	ADSL- modem F72	ISDN F73	trådlöst/ radiolänk F74	fast för- bindelse F75
Antal skolor:						

Fråga 8					
Internettförbindelsens kapacitet (bandbredd)					
	Antal skolor med... förbindelse direkt till skolan bandbredd högst 1 Mbit/sek F81		Antal skolor med... förbindelse via gemensam kommunnod bandbredd högst 1 Mbit/sek F83		
	bandbredd mer än 1 Mbit/sek F82		bandbredd mer än 1 Mbit/sek F84		
Antal skolor:					

Fråga 9			
Kommungemensamt skolnät / WAN		Vanligaste kapacitet (bandbredd) mellan skolorna:	
Antal skolor som ingår i kommun-gemensamt nät		Högst 2 Mbits/sek	Mer än 2 Mbits/sek
Antal skolor:		<input type="checkbox"/>	<input type="checkbox"/>

Fråga 10	
E-postserver finns...	
Lokalt på skolorna	<input type="checkbox"/>
Gemensam för kommunen	<input type="checkbox"/>
På annat sätt	<input type="checkbox"/>

Fråga 11	
Finns e-postkatalogtjänst (adress-bok) med identiteter för lärare/elever?	
Ja, lokalt på skolorna	<input type="checkbox"/>
Ja, gemensam för kommunen	<input type="checkbox"/>
Nej	<input type="checkbox"/>

Fråga 12			
Har skolhuvudmannen en IT-strategi/handlingsplan för datorområdet? Denna fråga avser endast av styrelse/nämnd verkliga fastställda planer.			
JA, särskild fastställd plan	<input type="checkbox"/>	JA, i skolplanen <input type="checkbox"/>	NEJ <input type="checkbox"/>