European Schoolnet

University of Liege
Psychology and
Education

SURVEY OF SCHOOLS: ICT IN EDUCATION

COUNTRY PROFILE: SWEDEN

November 2012

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1. INTRODUCTION

ICT IN THE SCHOOL EDUCATION SYSTEM OF SWEDEN

In Sweden[1] the ministry of Education and Research and the central authorities connected to have the overall responsibility for central administration of the educational system. The ministry sets the frames for the education system and the agencies have the task to implement the law and ordinances. All pupils attend publicly funded schools which are open to all and follow the same curricula and receive grants from the municipalities as municipal schools do. The government has the overall responsibility for education and sets the framework for education at all levels, but the municipalities are responsible for providing and operating schools at primary and secondary level. For schools there are curricula, goals and syllabi. There are nine years of compulsory schooling for all children aged 7 to 16 and children and young people have a right to receive education in the national school system. Schools at compulsory level are funded by municipal grants from the pupils' home municipalities and by state grants.

According to Eurydice's **Key Data on Learning and Innovation through ICT at school in Europe**[2], in Sweden education issues are addressed within an overarching broadband strategy. There are central steering documents for ICT learning objectives[3] at both primary and secondary education level for knowledge of computer hardware and electronics, using a computer, and searching for information. In primary and secondary schools ICT is taught as a general tool for other subjects/or as a tool for specific tasks in other subjects. At primary and secondary education level no recommendations or suggestions and support are provided in ICT hardware or for ICT software[4]. According to official steering documents, both students and teachers at primary and secondary level are expected to use ICT in all subjects in class. There are no central recommendations on the use of ICT in student assessment. Public-private partnerships for promoting the use of ICT are encouraged for private funding for hardware and software in schools.

THE SURVEY OF SCHOOLS: ICT IN EDUCATION

In 2011, the European Commission Directorate General Communications Networks, Content and Technology[5] launched the Survey of Schools: ICT in Education, the primary goal of which is to benchmark countries' performance in terms of access, use and attitudes to ICT at grades 4, 8 and 11. The Survey of Schools is one of a series within the European Union's cross-sector benchmarking activities comparing national progress to Digital Agenda for Europe (DAE) and EU2020 goals. The Survey is funded by the European Commission Communications Networks, Content and Technology Directorate General and is a partnership between European Schoolnet and the Service d'Approches Quantitatives des faits éducatifs in the Department of Education of the University of Liège. The survey

[1] https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php?title=Home

[2] http://eacea.ec.europa.eu/education/eurydice/documents/key data series/129EN.pdf**, published in 2011, specifically the following tables and associated commentaries:** A6, B6, B7, C2, C3, C4, C12 and E10.

[3] i.e. knowledge of computer hardware and electronics, using a computer, using mobile devices, using office applications, searching for information, using multimedia, developing programming skills, and using social media.

[4] from a range of hardware and software, i.e. computers, projectors or beamers, DVDs, videos, TV, cameras, mobile devices, e-book readers, smartboards, virtual learning environments; tutorial software, office applications, multimedia applications, digital learning games, communication software, digital resources.

[5] www.ec.europa.eu/dgs/connect/

took place between January 2011 and May 2012, with data collection in autumn 2011, and covered 31 countries (the EU27, Croatia, Iceland, Norway and Turkey). In four countries (Germany, Iceland, Netherlands and the United Kingdom) the response rate was insufficient, making reliable analysis of the data impossible; therefore the findings in this report are based on data from 27 countries.

This country profile should be read in conjunction with the Report of the Survey of Schools: ICT in Education (the 'main report'). The profile presents key indicators concerning access, use and attitudes to Information and Communication Technology in primary and secondary schools derived from responses to surveys completed by head teachers, teachers and students, showing national results against the EU average and, where possible, for grade 8 only. Charts for this grade are shown but not for other grades for reasons of brevity and clarity and because results at this grade tend to be indicative of all grades (i.e. having the characteristics and revealing issues found both at grade 4 and at grade 11). The text provides information about the results and rankings at other grades and a reference to the particular chart in the main report.

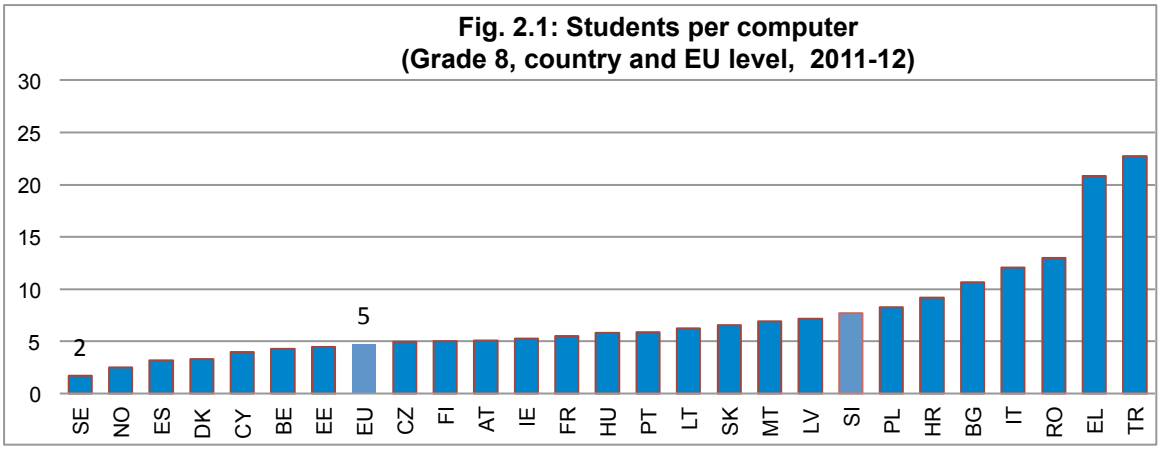
The full report, country profiles, background information, questionnaires, tables, details of the methodology and the raw data are freely available at https://ec.europa.eu/digital-agenda/en/pillar-6-enhancing-digital-literacy-skills-and-inclusion. The authors may be contacted at essie-eu@eun.org and information about the survey is at http://essie.eun.org.

2. ICT INFRASTRUCTURE

AVAILABILITY OF COMPUTERS FOR EDUCATIONAL PURPOSES

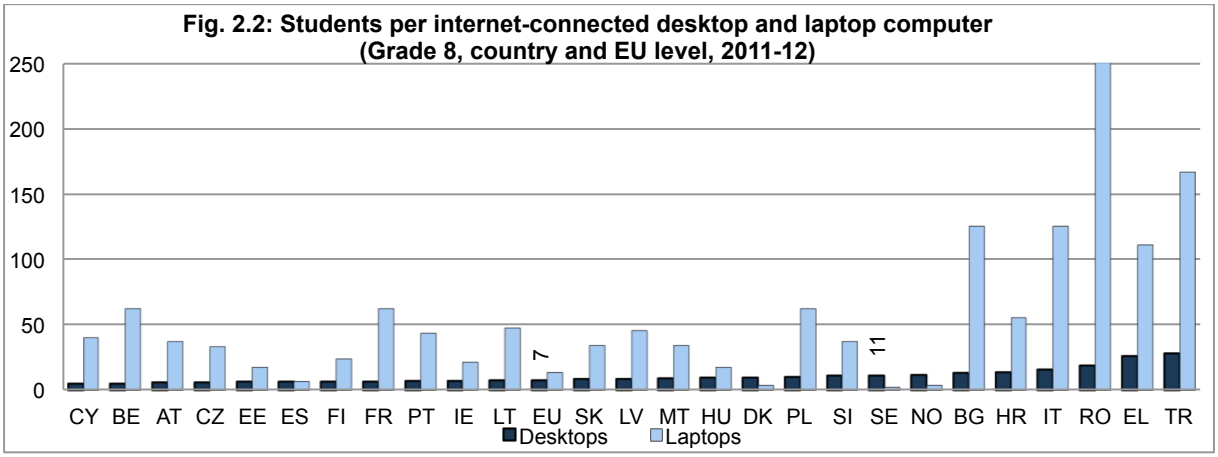
A computer is defined as a desktop or laptop, netbook or tablet computer, whether or not connected to the internet, available for educational purposes in school. In Sweden there are considerably more computers available for Grade 4 students than the EU average (fig. 1.1 main report), and at Grade 8 nearly three times the EU mean. At grade 11 low response rates in Sweden meant that the data could not be included safely.

Fig. 2.1: Students per computer (Grade 8, country and EU level, 2011-12)



As for computers connected to the internet in schools, in Sweden there are considerably more laptop computers at all grades compared to the EU average, with a ratio of almost one per pupil at Grade 11 vocational schools (main report fig. 1.2). At all grades Sweden ranks in the top four countries. A major shift away from desktop to laptop computers is evident, with far fewer students per laptop than per desktop at grade 8 (fig. 2.2), and at other grades.

Fig. 2.2: Students per internet-connected desktop and laptop computer (Grade 8, country and EU level, 2011-12)



Computers tend to be located in classrooms at grades 4 and 8 and in labs at grade 11 in Sweden. Lower percentages of students at all levels are in schools where over 90% of computers are operational (main report, fig. 1.4), ranking Sweden among the top ten countries for non-operational computers (but this could be explained by their falling into disuse as that of laptops and tablets rises).

BROADBAND

At all grades percentages of students in schools with broadband faster than 10mbps are much higher than the EU mean with around a third at grade 11 and more than a fifth at grades 4 and 8 having more than 100mbps. In Sweden percentages of students at Grade 4 and 8 are in schools that have no broadband are close to the EU mean, but there are none at Grade 11.

Fig. 2.3: Broadband speed
(% students excluding 'don't know', Sweden and EU, 2011-12)

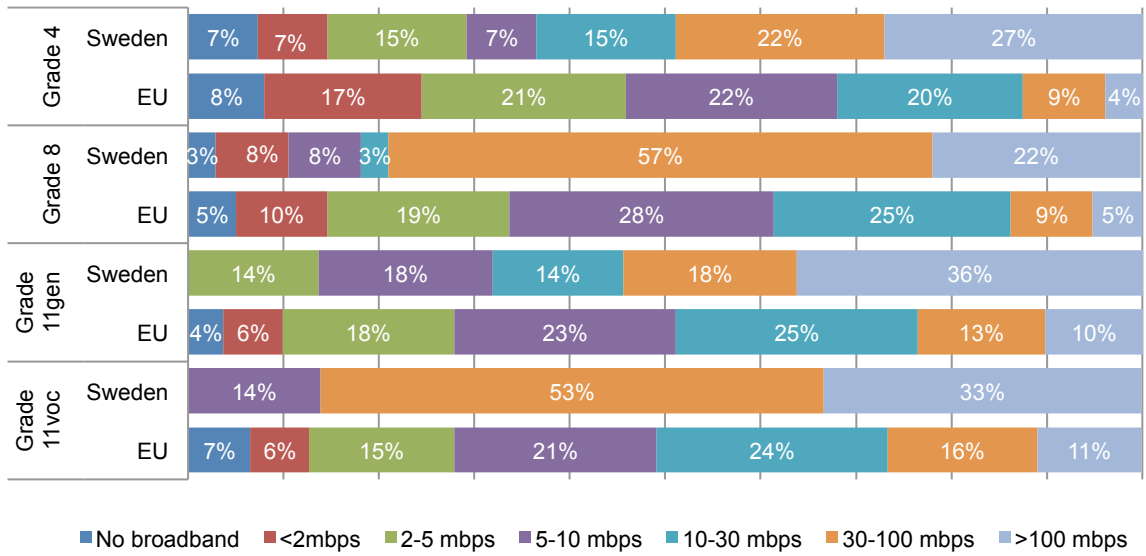
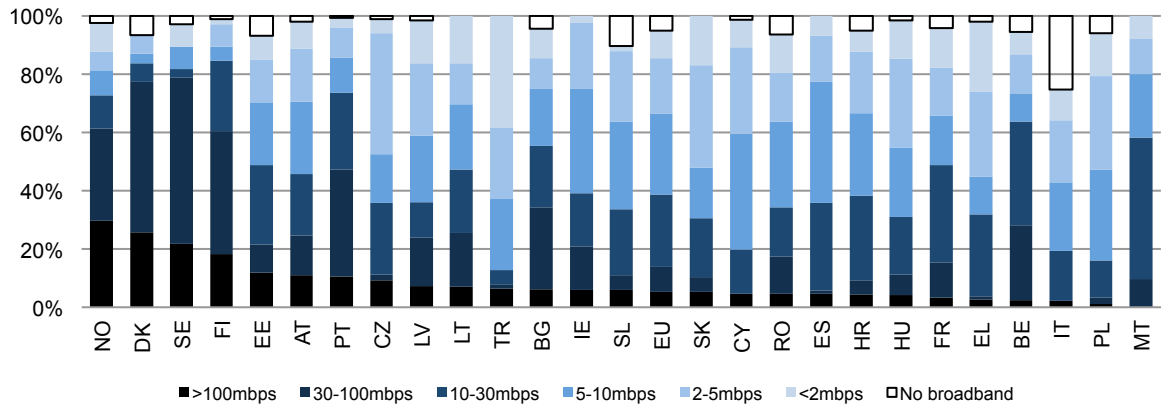


Fig. 2.4 shows how Sweden compares to other countries at grade 8: third highest in terms of the percentage of students in schools with high speed broadband and in the top six at other grades (main report, fig. 1.8).

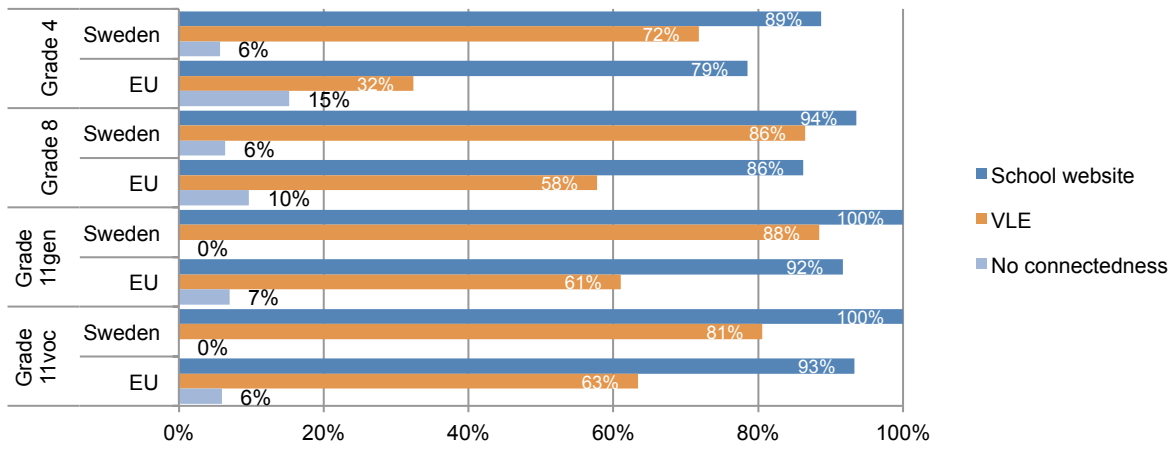
Fig. 2.4: Broadband speed
(Grade 8, country and EU level, 2011-12, ranked by >100mbps, 2011-12)



‘CONNECTEDNESS’

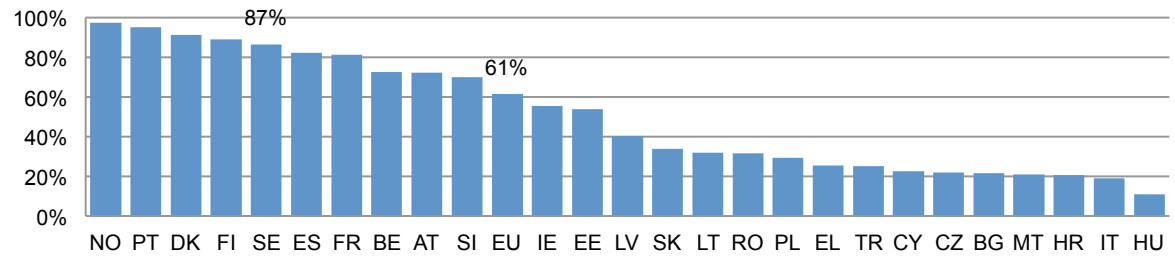
Percentages of students in schools that have ‘connected’ characteristics, e.g. having a website or a virtual learning environment (VLE) are shown below, as well as those with none of these items. In Sweden, a higher percentage of students than the EU mean are in schools with a website, all at grade 11, and considerably more in schools with a virtual learning environment. ‘Unconnected’ schools are a rarity, with none at grade 11.

Fig. 2.5: Percentage of students in connected schools - website, virtual learning environment, no connectedness
(Sweden and EU, 2011-12)



Sweden ranks well above other countries as regards virtual learning environments at grade 8, as seen in fig. 2.6 and in the top eight at other grades (main report, fig. 1.10).

Fig. 2.6: % of students in schools with a virtual learning environment (Grade 8; country and EU level, 2011-12)



3. FREQUENCY OF ICT USE IN CLASS

FREQUENCY OF ICT USE BY TEACHERS IN CLASS

Teachers' frequency of use of ICT in lessons is shown in the charts below. In Sweden, despite the high provision of equipment and connectivity, use of ICT by teachers at the grades surveyed is close to the EU average, slightly above at grade 8. At this grade there are very few teachers using ICT rarely and 40% use ICT in at least 25% of lessons of lessons. The most intense use of ICT is found at grade 11 vocational. There are few low users of ICT in lessons (e.g. less than 5% of lessons) compared to the EU mean except at grade 8.

Fig. 3.1: Frequency of use of ICT equipment by teachers in lessons
(in % students, Sweden and EU, 2011-12)

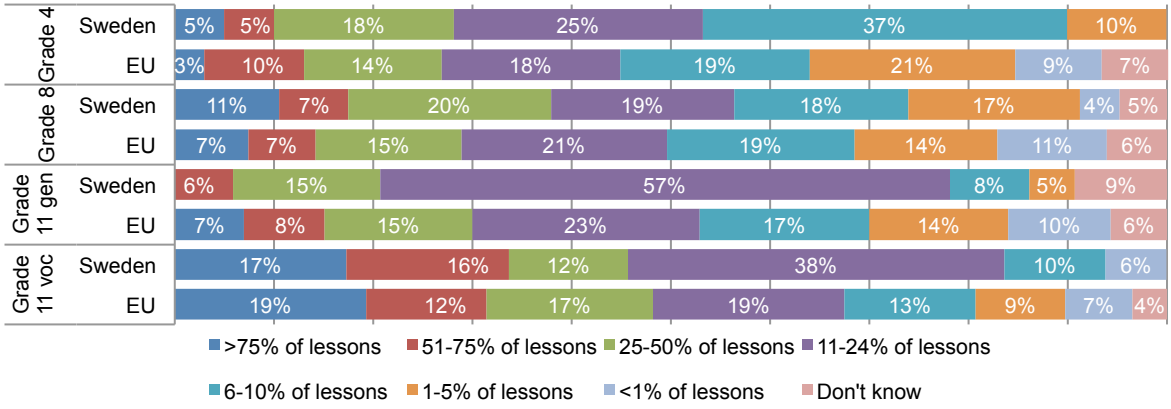


Fig. 3.2: Teachers' use of ICT in at least 25% of lessons
(% students, Sweden and EU, 2011-12)

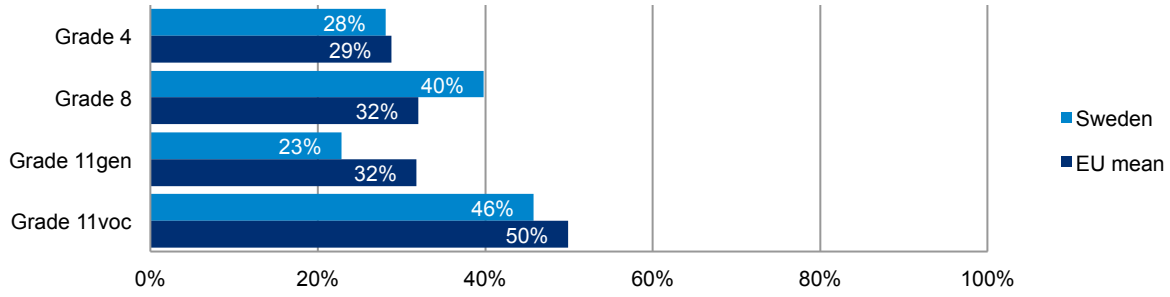
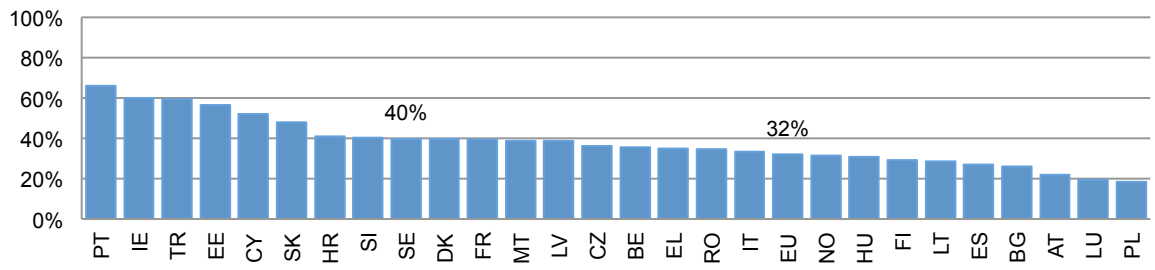


Fig 3.3 shows Sweden ranks ninth at grade 8 concerning percentages of students in schools where teachers use ICT in more than 25% of lessons (16th at grade 4, and, surprisingly given levels of ICT access, in the bottom three at grade 11 general - main report, fig. 2.2).

Fig. 3.3: Teachers' use of ICT in more than 25% of lessons (Grade 8, EU and country level, 2011-12)

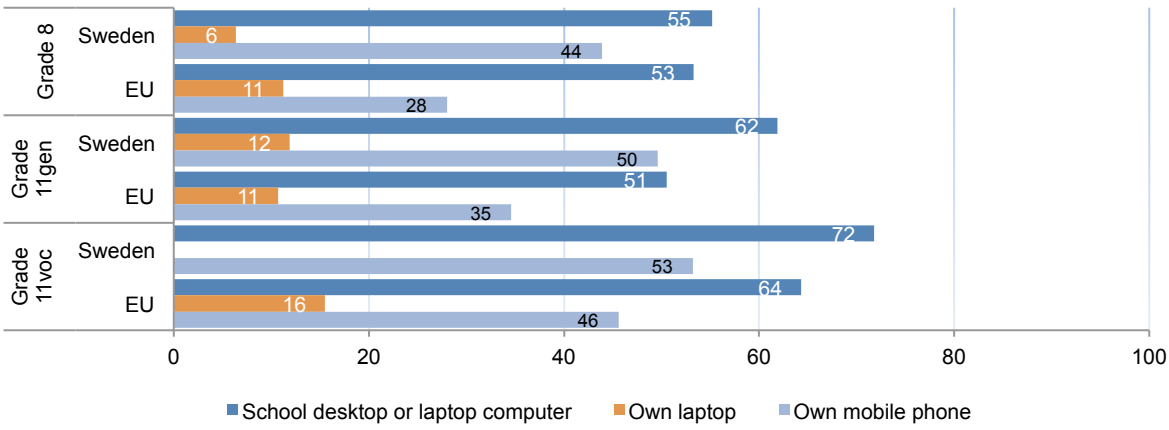


As regards teachers' use of ICT (Section 3 of the main report), Sweden is in the top half of countries where teachers have been using ICT in lessons for more than six years (main report, fig 3.2). Sweden is fifth in terms of student-centred learning at grade 11 general (fig. 3.5) but among the lowest countries at grades 4 and 8 and in the middle range at grade 11 vocational.

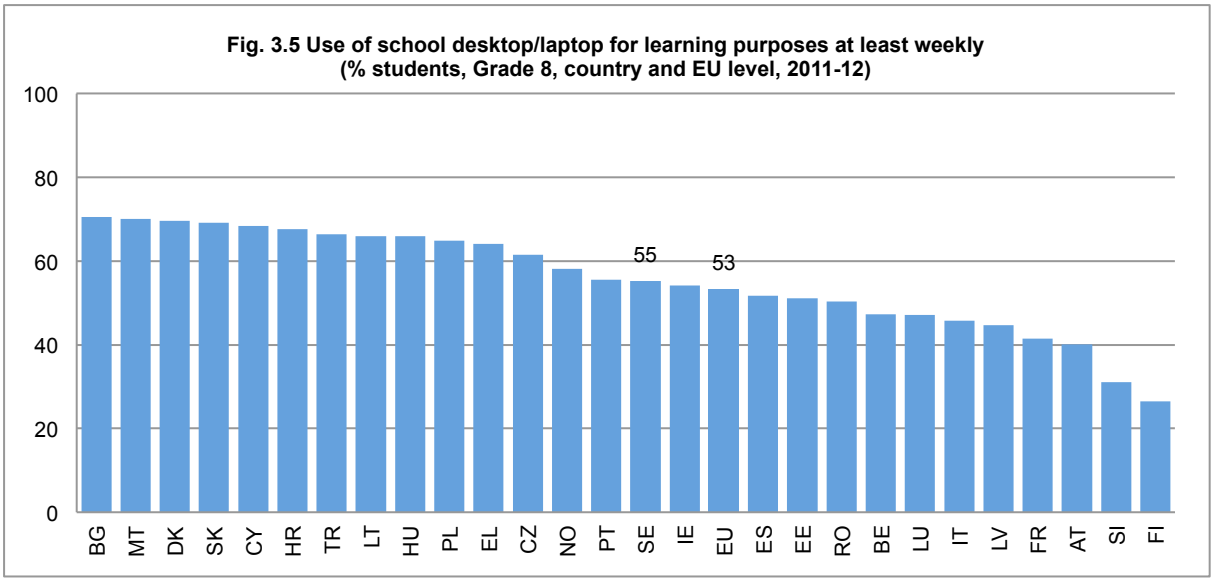
STUDENTS' ICT USE

Students at grade 8 and 11 were also asked how frequently they used various items of ICT equipment in their lessons for learning purposes. The chart below shows their reported intensity of use of a school computer, and their own laptop or mobile phone. In Sweden student use of computers in class is higher than the EU mean, noticeably at grade 11 probably due the high levels of provision by the school. Mobile phone usage is considerably higher than the EU mean at all levels and is over 50% at grade 11.

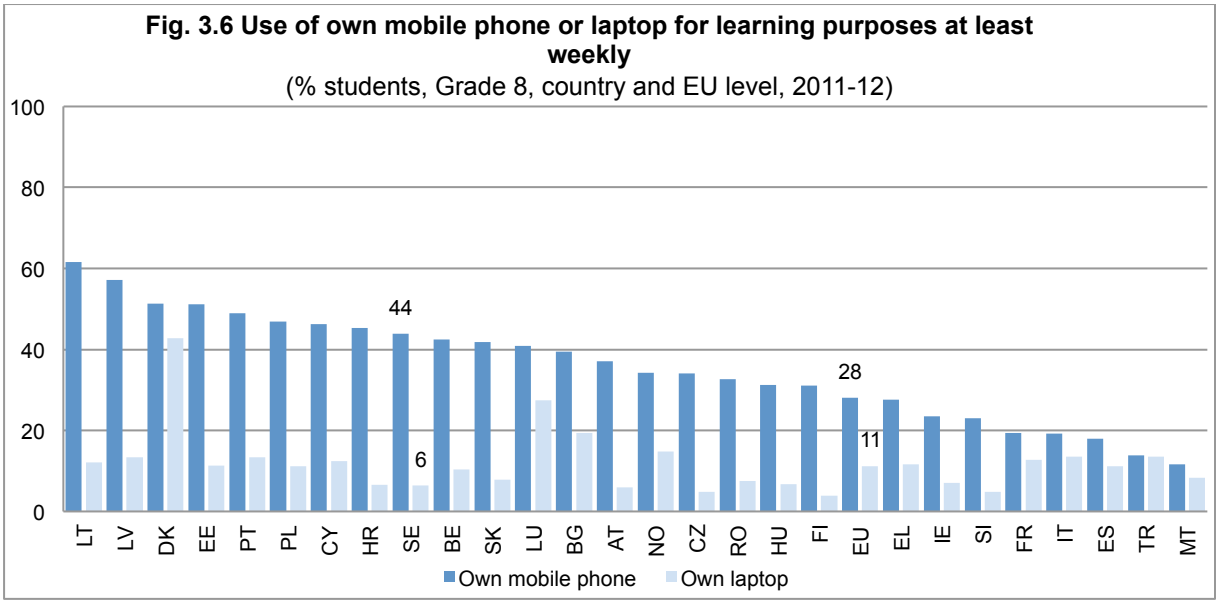
Fig. 3.3: Percentages of students using ICT equipment in class for learning, at least once a week
(Sweden and EU, 2011-12)



At grade 8 students' reported use of computers is in the mid-range of countries, over 55% saying they use them at least once a week (fig. 3.5) and ninth and seventh at grades 11 general and vocational respectively (main report, fig. 2.5).



Compared to other countries at grade 8 (fig.3.6), students in Sweden are relatively heavy users of their own mobile phone but there is less use of their own laptop in school. At other grades these figures are similar (main report, fig. 2.5).



Students report using interactive whiteboards much less frequently than the EU average at all grades, at grade 11 general Sweden ranks among the lowest four countries on this measure. Concerning students' ICT-based activities during lessons, Sweden is among the middle group of countries as measured by frequency of use (main report, fig. 3.8) at grade 8, but in the top five at grade 11.

4. DIGITAL CONFIDENCE

TEACHERS

The mean score of students in Sweden being taught by teachers declaring confidence in their operational skills and social media skills is close to 3 in all grades, much in line with the EU mean except at grade 8.

Fig. 4.1: Teachers' self-confidence in their operational and social media skills

(by grade; mean score of students with 1 being 'none' and 4 being 'a lot'; Sweden and EU; 2011-12)

Fig. 4.1a: grade 4

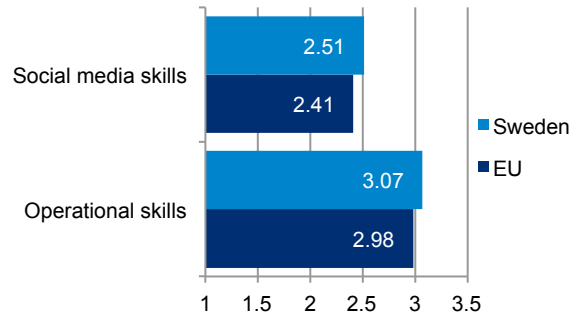


Fig. 4.1b: grade 8

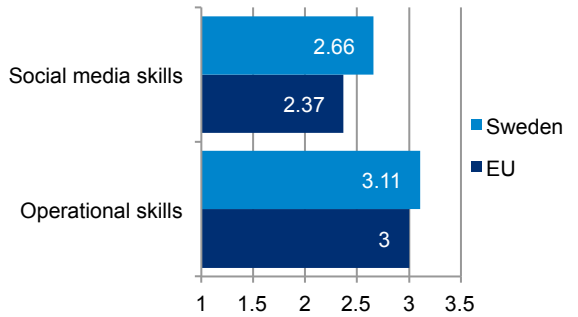


Fig. 4.1c: grade 11 gen.

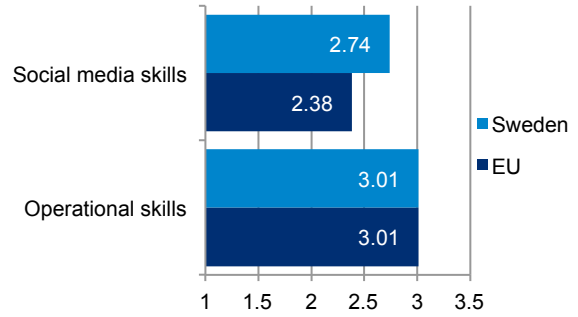
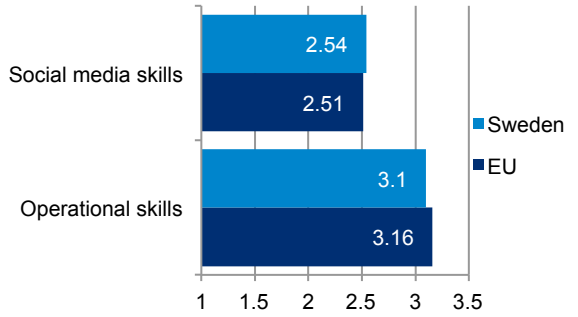
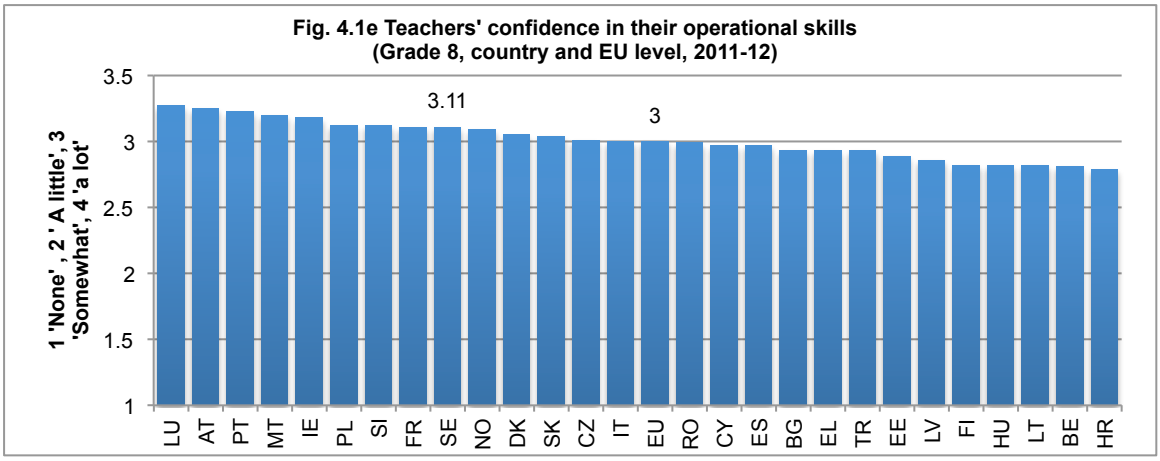


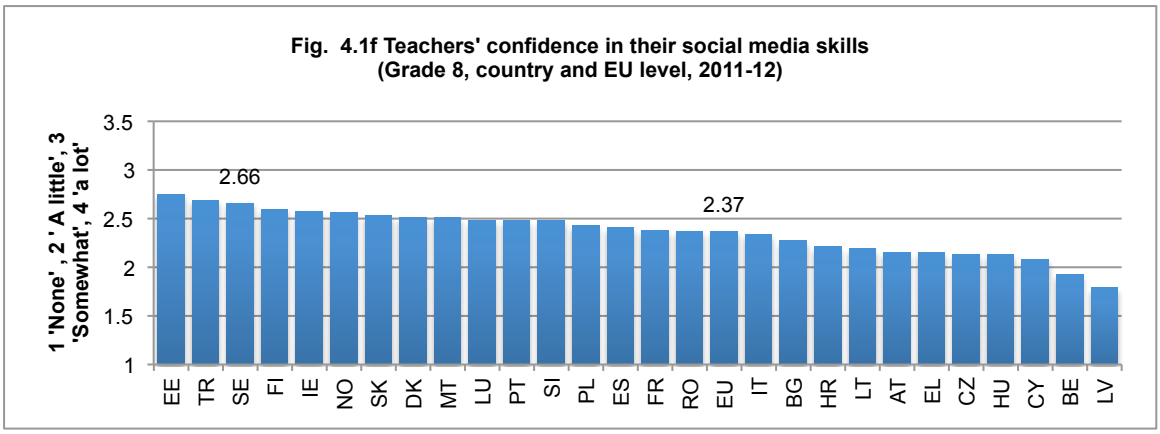
Fig. 4.1d: grade 11 voc.



Comparing confidence levels at grade 8, teachers' confidence in their operational skills places Sweden in the top group of countries (fig. 4.1e), but lower at grade 11 (main report, fig. 4.13).



At grade 8 Swedish teachers are third as regards social media confidence (fig. 4.1f) and in the top half at other grades (main report, fig. 4.14).



STUDENTS

The mean score of students' self-rated confidence in the ICT skills in Sweden is generally above EU means (fig. 4.2).

Fig. 4.2: Students' self-confidence in their ICT skills

(by grade; mean score of students with 1 being 'none' and 4 being 'a lot'; Sweden and EU; 2011-12)

Fig. 4.2a: grade 8

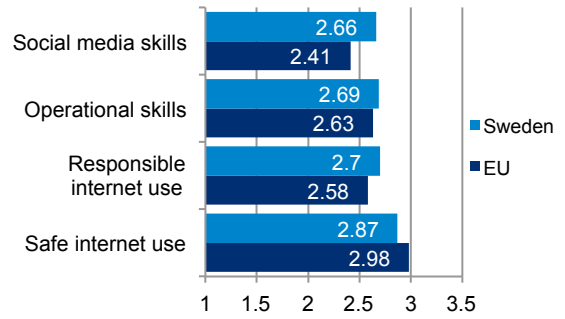


Fig. 4.2b: grade 11 gen.

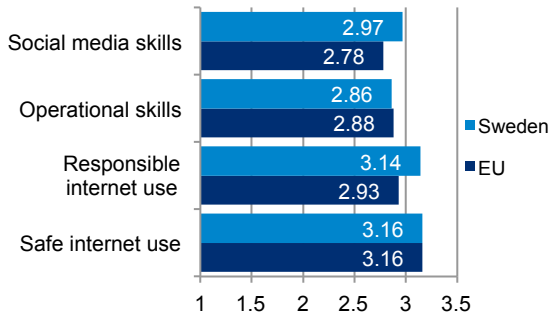
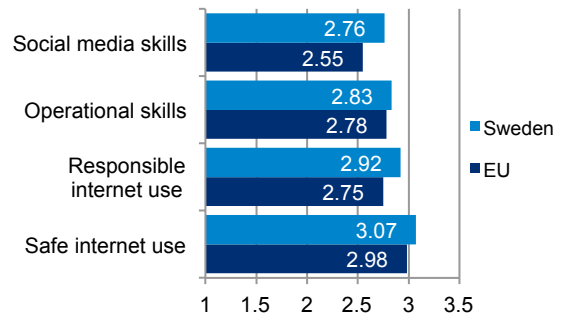
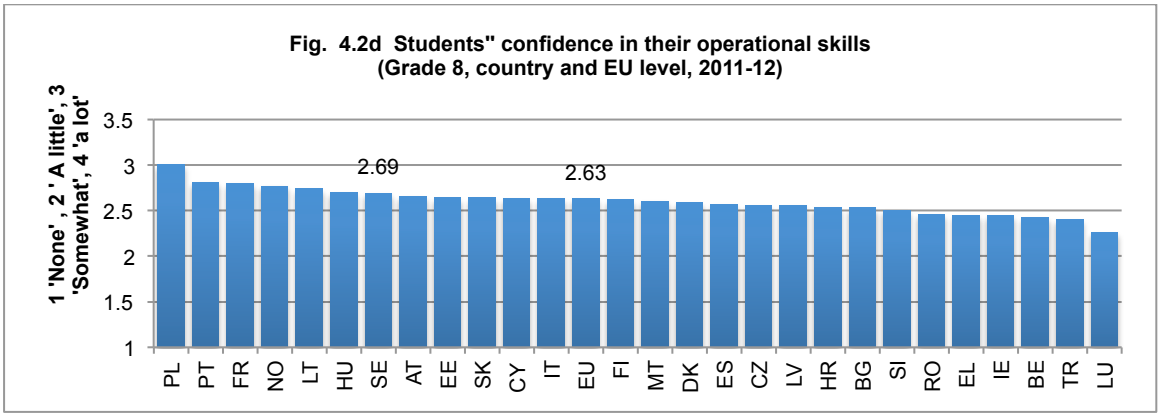


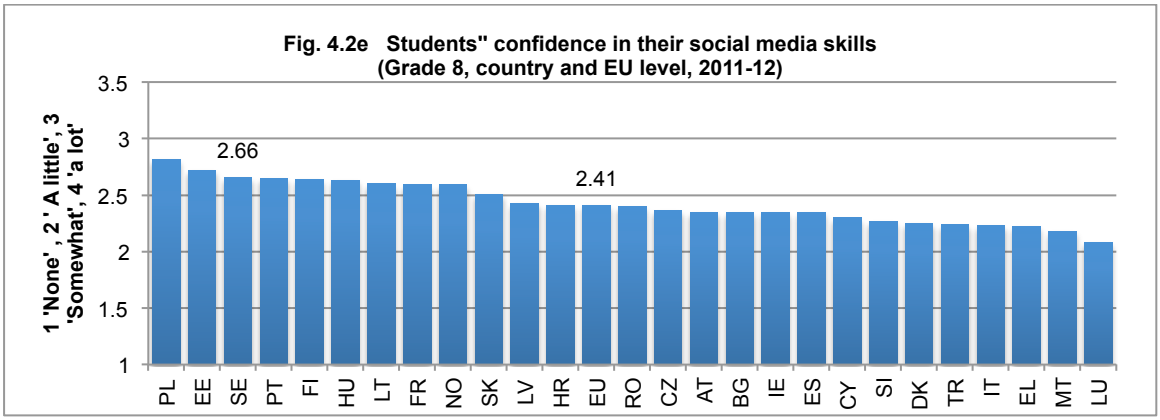
Fig. 4.2c: grade 11 voc.



Confidence in operational skills is higher than the EU mean amongst grade 8 students (fig. 4.2d), lower at grade 11 general but fifth highest at grade 11 vocational.



Sweden is in the top four for confidence in social media competence at all grades (fig. 4.2e for grade 8).



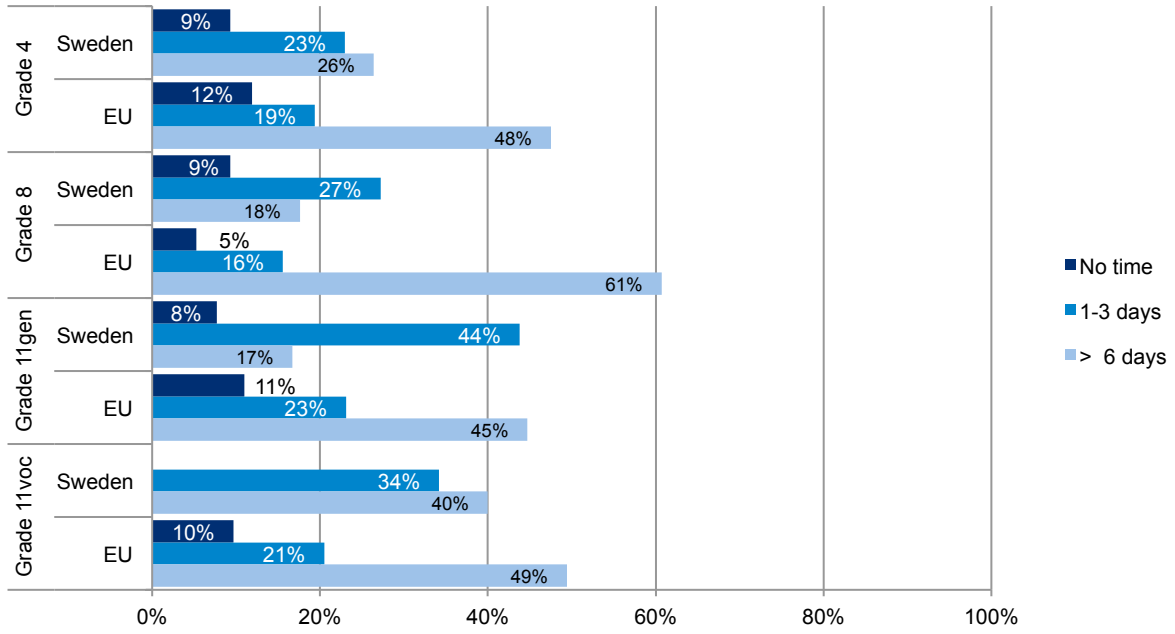
At all grades students in Sweden are in the middle group of countries in terms of confidence to use the internet safely and to use it responsibly (main report, fig. 4.16, 4.17), except at grade 11 where confidence in responsible use ranks Sweden second.

5. PROFESSIONAL DEVELOPMENT

TIME SPENT ON TRAINING

Strikingly fewer students at grade 8 in Sweden are taught by teachers who have invested more than 6 days in professional development activities during the past two years, compared to the EU average. The same is the case for grade 4 and grade 11 students in general education, albeit to a lesser extent, while at grades 11 vocational level the situation in Sweden is closer to the EU average. When it comes to students being taught by teachers who have alternatively spent between 1 and 3 days on professional development during the last two years, Sweden this is higher at all grades. The percentage of students being taught by teachers who have spent no days on professional development is below the EU level at all grades except for grade 8 which is slightly higher.

Fig. 5.1: Time invested by teachers in professional development activities during the past two years (in % of students; excluding '4-6 days' and '< 1 day'; Sweden and EU; 2011-12)



ENGAGEMENT IN TRAINING

As Fig. 5.2 below shows, Sweden is positioned higher than the EU mean at all grades, except grade 8, and significantly so at grade 11 vocational when considering the percentage of students taught by teachers who have recently undergone ICT training provided by school staff, but lower at all grades, where they have received personalized training, or training via online communities (except at grade 4).

Fig. 5.2: Means through which teachers have engaged in ICT related professional development during the past two years

(by grade; in % of students; Sweden and EU; 2011-12)

Fig. 5.2a: grade 4

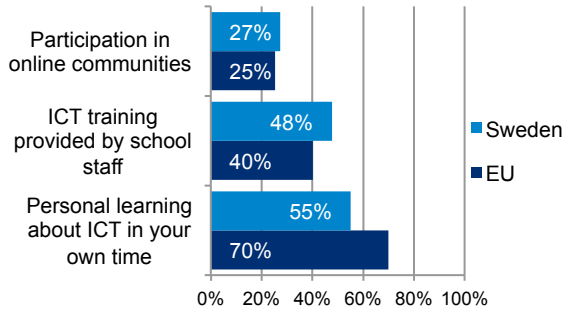


Fig. 5.2b: grade 8

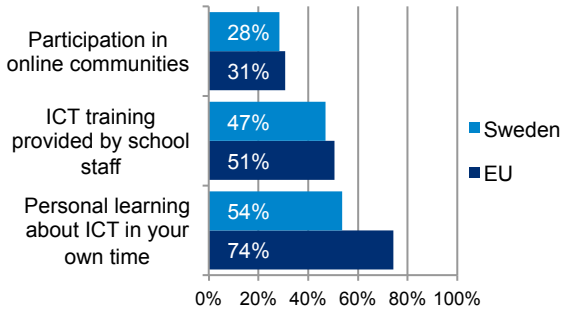


Fig. 5.2c: grade 11 gen.

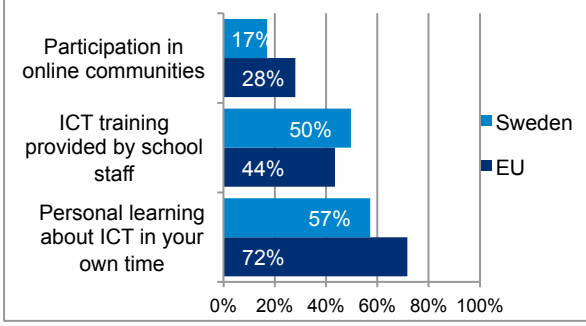


Fig. 5.2d: grade 11 voc.

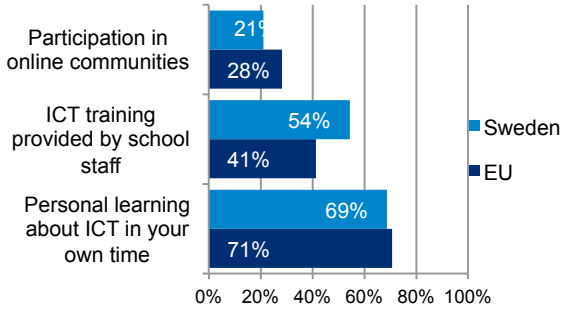
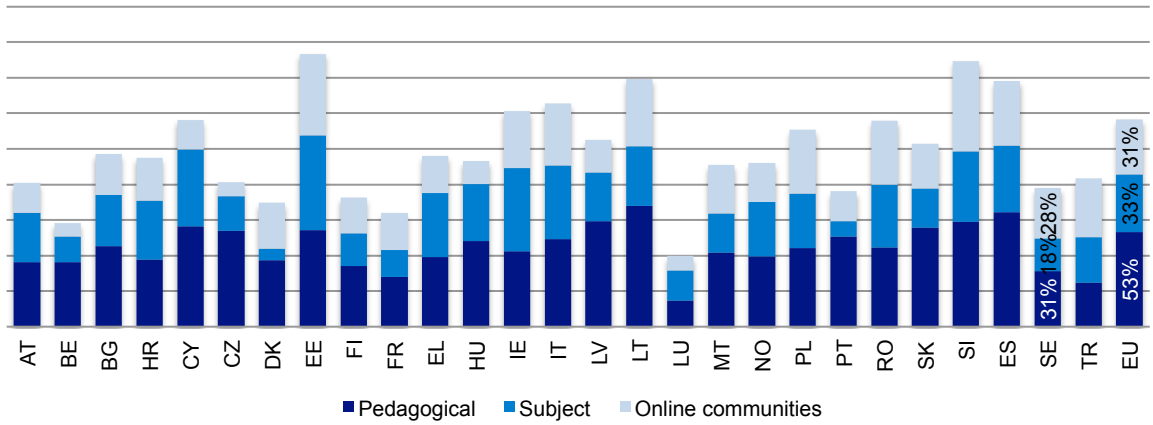


Fig. 5.2e shows that grade 8 teachers in Sweden have taken part less extensively in professional development of three types in the preceding two years.

Fig. 5.2e: Participation in professional development (Grade 8, by type, country and EU, 2011-12)



In Sweden at most grades percentages of students taught by teachers for whom ICT training is compulsory are around the average in the EU (main report, fig. 4.2). As regards involvement in personal learning about ICT in their own time (main report, fig. 4.4), percentages (in the range 54% to 69%) rank Sweden among the bottom six countries at all grades. The percentage of students taught by teachers participating in training provided by school staff places Sweden in the middle group of countries (main report, fig.4.5).

Between 8 and 9 per cent of students are taught by teachers who have *not spent any time* on ICT-related professional development activities during the preceding two years (main report, fig. 4.11), placing Sweden among the middle group of countries on this indicator.

6. SCHOOL SUPPORT MEASURES

In general students in Sweden are in schools where below EU averages of ICT strategies are implemented (main report, fig. 5.3), placing Sweden in the lower half of countries, and last at grade 8. There are also low percentages of students in schools with strategies to support teacher collaboration (main report, fig. 5.7), ranking Sweden in the bottom ten countries. A similar pattern emerges as regards strategies about responsible internet and social media use (main report, fig. 5.10). On the other hand Sweden is in the top ten countries for percentages of students in schools with change management programmes at all grades (main report, fig. 5.14), at all grades except grade 11 vocational.

ICT COORDINATOR

In Sweden, compared to the situation at EU level (see Fig. 8b), around 77% of students at grade 4 are in schools where ICT coordinators are provided compared with 62%, but this is lower than the EU level at all other grades, significantly so at grade 11 general. Students at grade 11 general are in schools that all employ full time ICT coordinators, more than double the EU mean.

Fig. 6.1: Percentages of students in a school with ICT coordinator (all grades, Sweden and EU, 2011-12)

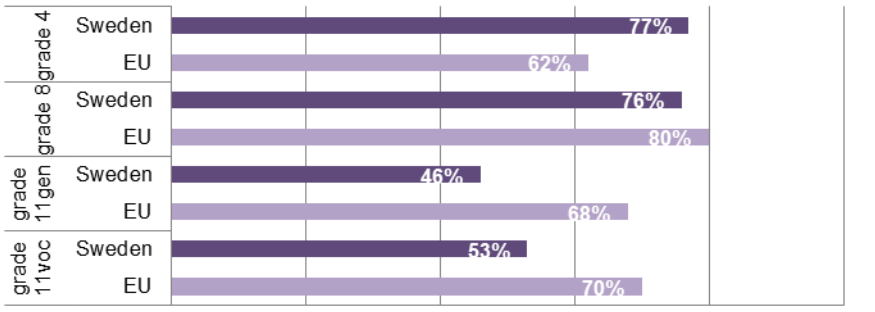
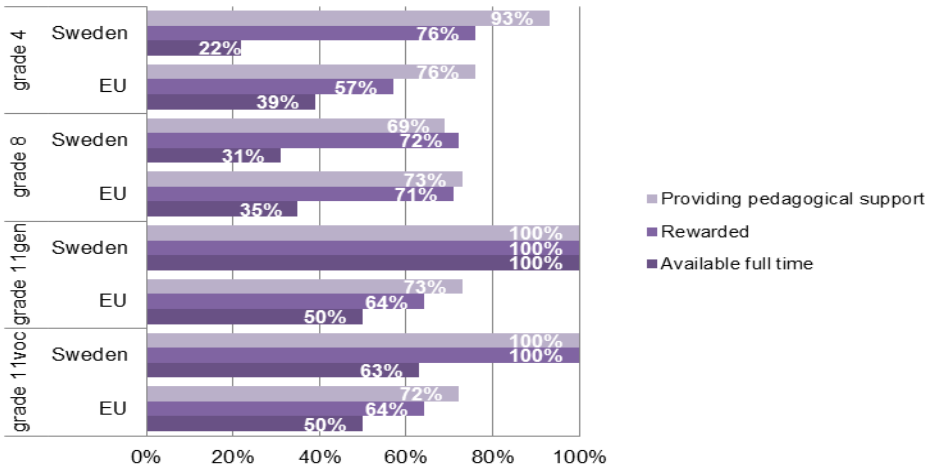


Fig. 6.2: Percentages of students in a school with ICT coordinator available full time, and/or rewarded and/or providing pedagogical support (all grades, Sweden and EU, 2011-12)



INCENTIVES

The majority of students are schools in Sweden where the ICT coordinator is provided with few incentives and in nearly all areas below the EU level. The exceptions are at grade 8 where there is a slightly above average financial incentive and at grade 4 where there is a significant reduction in hours.

Fig. 6.3a: Percentages of students in schools with incentives to reward teachers using ICT in T&L (grade 4; in % of students; Sweden and EU; 2011-12)

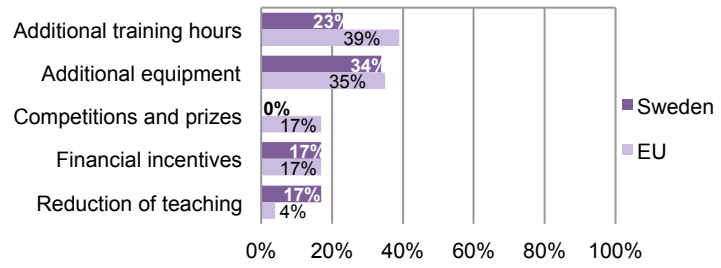


Fig. 6.3b: grade 8

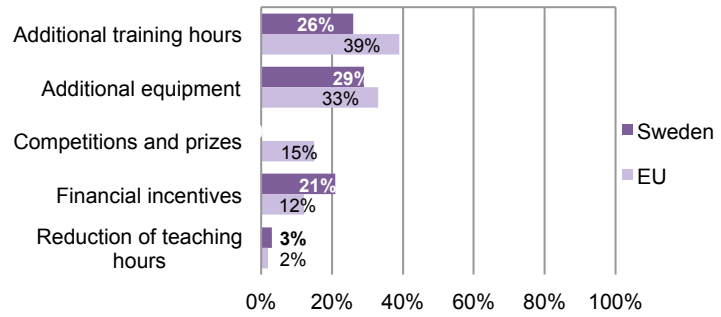
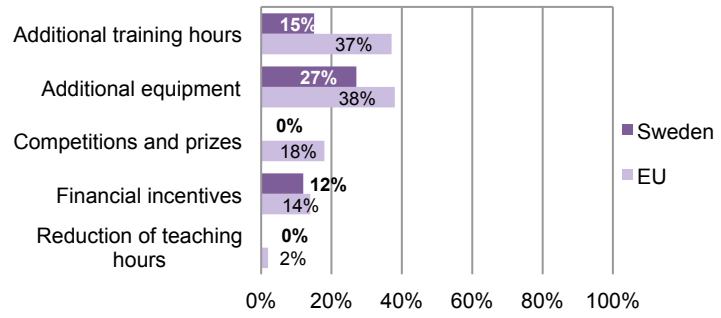


Fig. 6.3c: grade 11 gen.



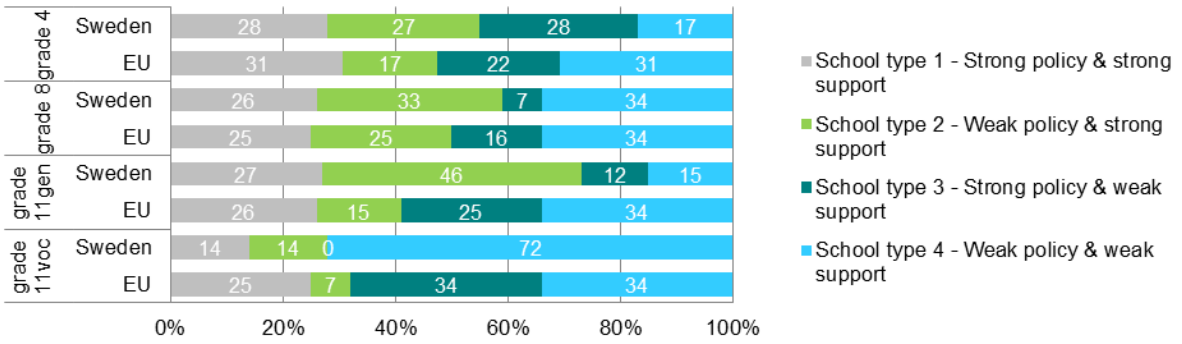
For further details please refer to Section 5 of the survey report.

7: CLUSTERS

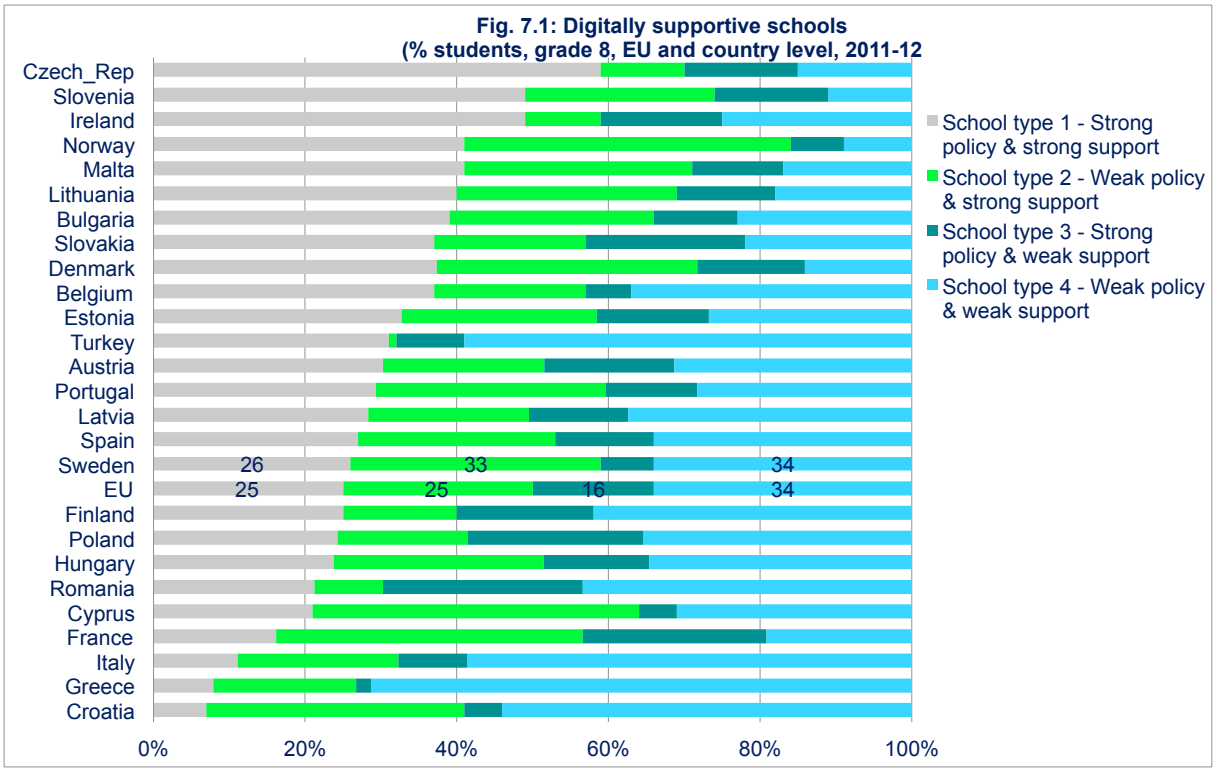
THE DIGITALLY SUPPORTIVE SCHOOL

Results from the Survey of Schools: ICT and Education suggest that a 'digitally supportive school' develops strong concrete support measures for teachers to use ICT in teaching and learning (ICT coordinator, teacher training, etc.), whether or not associated with strong policies (written statement about introducing ICT in teaching and learning and/or in subject, etc.). In Sweden, there are high levels of students in digitally supportive schools at all levels, especially at grade 11 general, but not at vocational. However, many of these students are in schools lacking strong policies, placing Sweden below or close to the EU mean if measured by percentages of students in schools with both strong policies and strong support.

Fig. A: Percentages of students by school type in terms of policy and support (all grades, Sweden and EU, 2011-12)

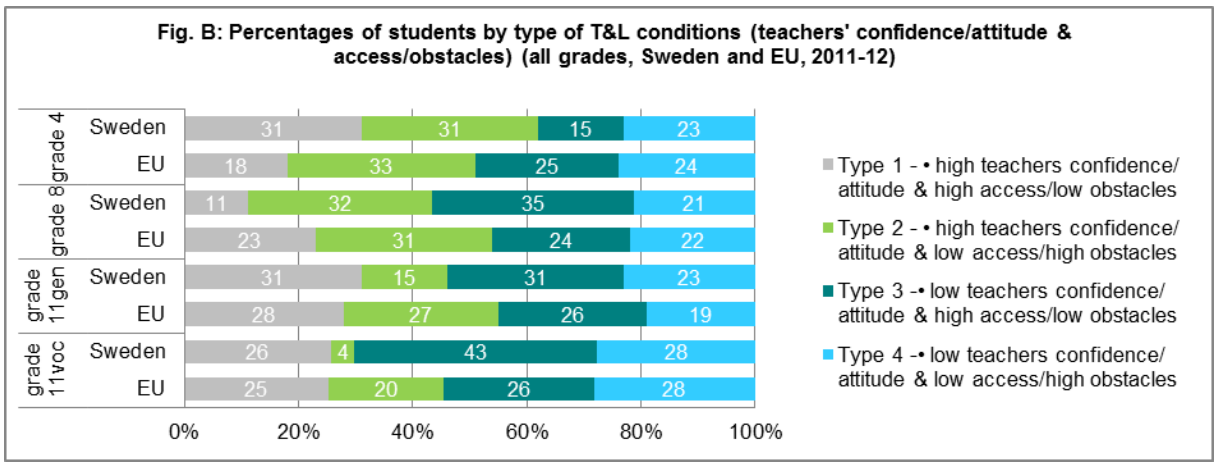


At grade 8 Sweden ranks in the middle range of countries having schools with strong policy and strong support (type 1) and of those with both weak policy and weak support (type 3). It is a similar story at grade 4 and 11 general, although percentages of type 3 schools are among the lowest (main report fig. 8.1). At grade 11 vocational Sweden is in the bottom five countries with type 1 schools, and has the highest percentage by far of students in type 3 schools.



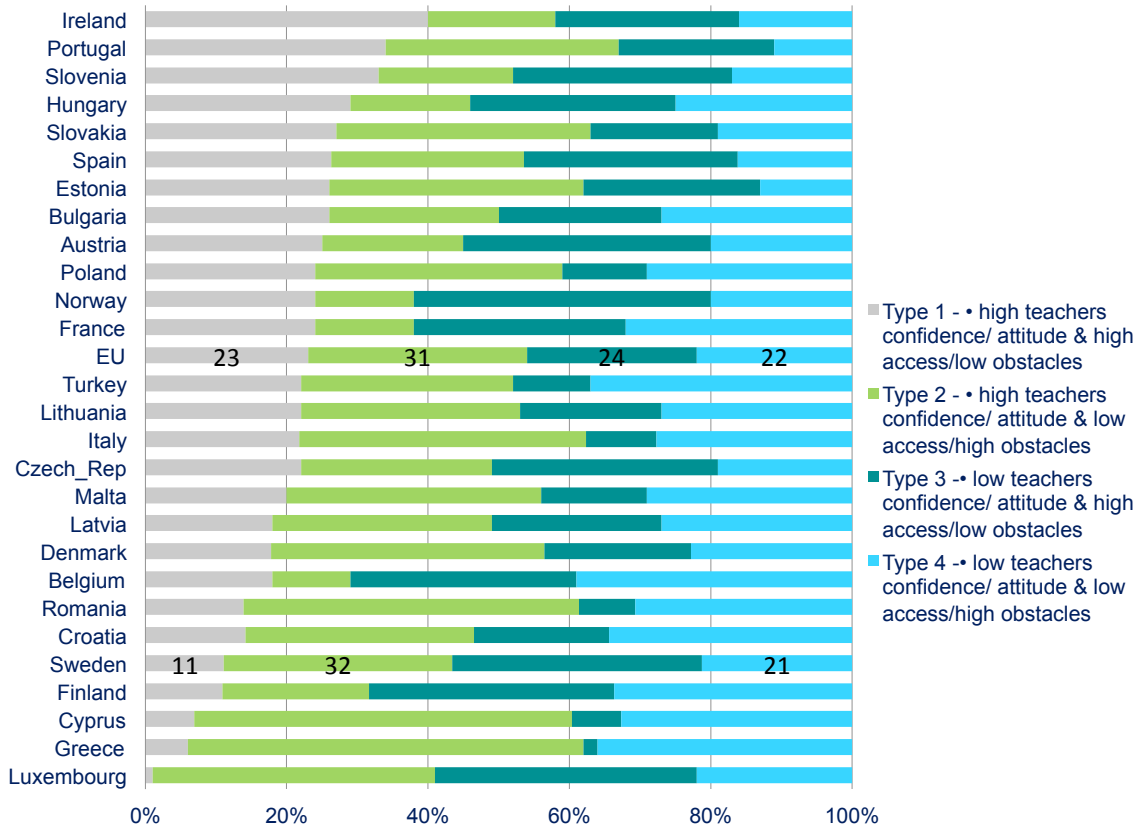
DIGITALLY CONFIDENT AND SUPPORTIVE TEACHERS

The concept of the 'digitally supportive teacher' also emerged from a close analysis of the data. Such teachers have high confidence in and a positive attitude towards ICT and high access to ICT and low obstacles to using it. Teachers having high confidence in and a positive attitude towards ICT even seem to be able to overcome low access to ICT and high obstacles. Percentages of students taught by digitally supportive teachers in Sweden are well below the EU mean at grade 8, but among the highest at grade 4 and above the EU mean at grade 11.



A low percentage of students at grade 8 compared to other countries is in schools with type 1 teachers (fig. 7.2), ranking Sweden in the lowest five countries in this respect. At other grades (main report, fig. 8.3), Sweden is fourth at grade 4 in terms of digitally supportive teachers but around the middle range of countries at grade 11.

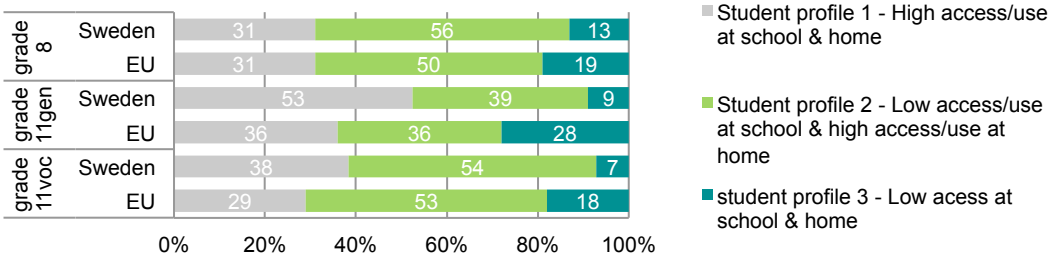
Fig. 7.2: Digitally supportive teachers
(% students, grade 8, EU and country level, 2011-12)



THE DIGITALLY SUPPORTIVE STUDENT

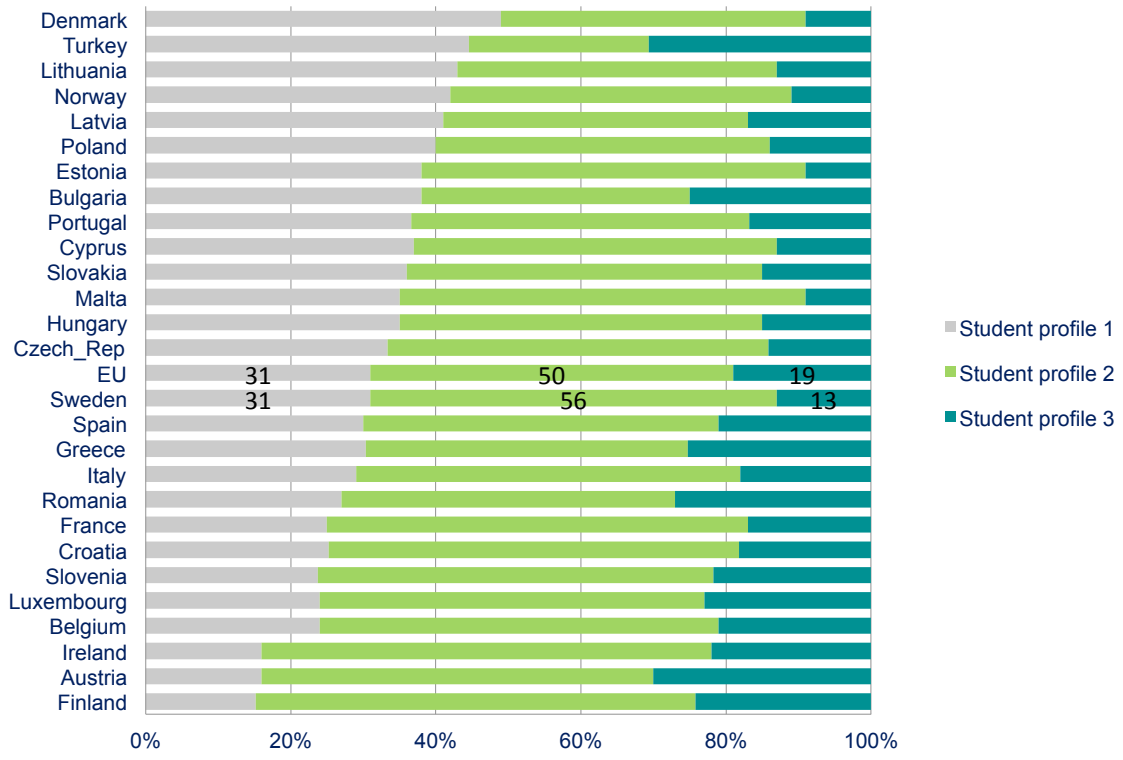
A *digitally supportive student* defined as having high ICT access and use at school and at home, the percentages of such students in Sweden are close to the EU mean at grade 8 and well above it at grade 11.

Fig.C: Percentages of students by profile in terms of ICT use at home and at school
(all grades, Sweden and EU, 2011-12)



On this measure, percentages of type 1 grade 8 students are close to the mid-range of countries in Europe (fig. 7.3) but in the top six countries at grade 11 (main report, fig. 8.5). At all grades Sweden is amongst the top ranking countries in terms of low percentages of type 3 students, ie few with low access both at school and at home.

Fig.7.3: Digitally supportive students
(% students, grade 8, EU and country level, 2011-12)



THE DIGITALLY EQUIPPED SCHOOL

A *digitally equipped school* is well equipped, has fast broadband (above 10mbps) and is 'connected' (i.e. has at least one of these: a website, email for teachers and students, a local area network, a virtual learning environment). Analysis of the data revealed three clusters of schools according to these measures:

- Type 1: Highly digitally equipped schools, characterised by relatively high equipment levels, fast broadband and relatively high connectedness
- Type 2: Partially digitally equipped schools, with lower than type 1 equipment levels, slow (less than 10mbps) or no broadband, and some connectedness
- Type 3: As type 2 but with no connectedness

Sweden is in the first three countries at all grades if ranked bv percentages of students in type 1 schools. Clearly, the technical conditions for the use of technology are in place in most if not all schools.

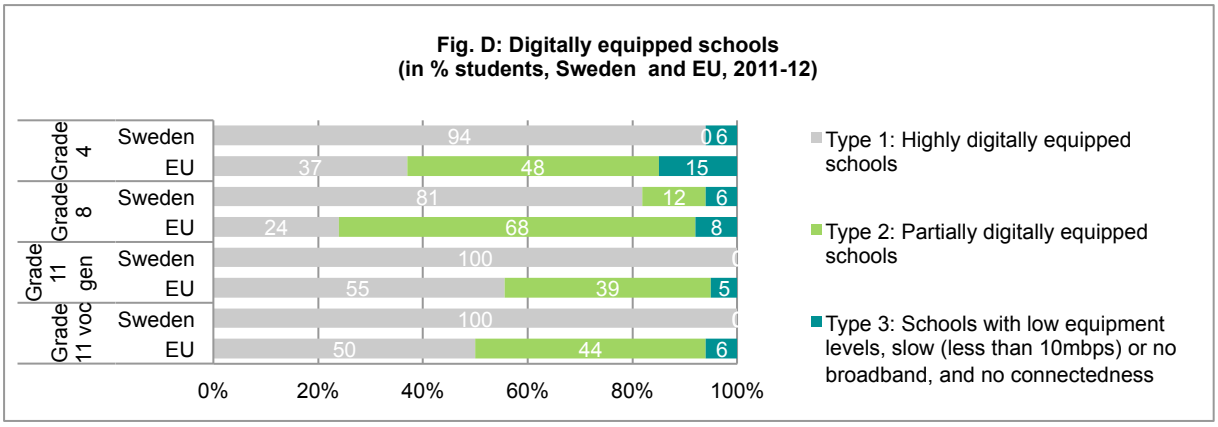
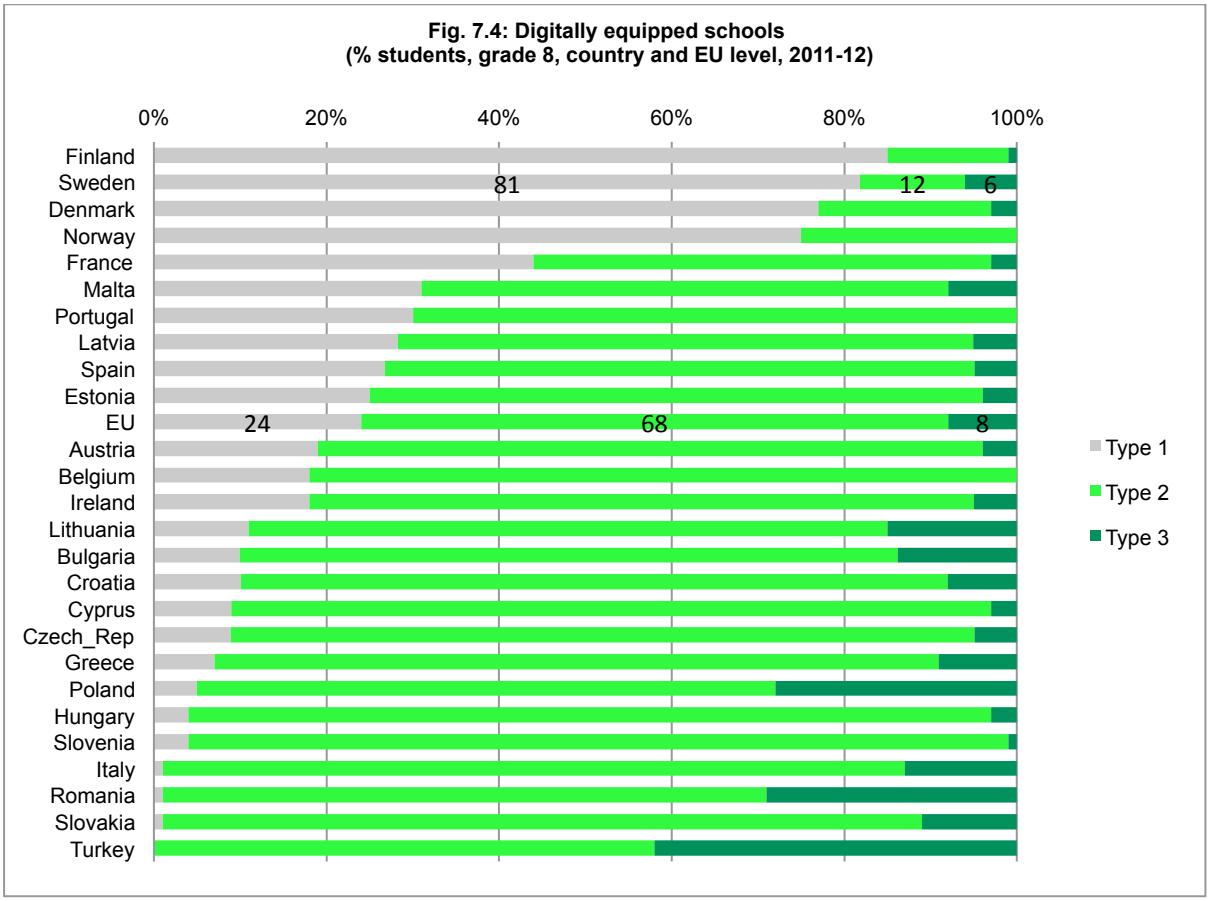


Fig. 7.4 shows how Sweden compares against other countries at grade 8 on this measure, ranking second to Finland. Very few students are in type 3 schools compared to other countries. At other grades (main report, fig. 1.13) Sweden is also in the top three countries for type 1 schools, having some of the lowest percentages of students in Europe in any other type of school.



CONCLUSION

In terms of **equipment,** students in Sweden are very well endowed compared to the EU mean, with 1:1 computing in vocational schools; it is clear that laptops rather than desktop computers are becoming ubiquitous. High-speed broadband provision too is at high levels throughout the system. Levels of connectedness (e.g. having a website or a virtual learning environment) are much higher than the EU mean.

As for **frequency of use of technology,** although low use seems to be exceptional, intensity of use is below the EU mean (except at grade 8), despite the high levels of infrastructure. On the other hand, student use of computers in lessons is above the EU average and use of their own mobile phone is well above the EU mean.

Both teachers' and students' **confidence in their ICT** skills is close to the EU mean.

Professional development in ICT seems to be one to three days per two years rather than six or more (where Sweden is below the EU mean). There seems to be little use of innovative training modes (e.g. online communities).

As for **support measures for using ICT in teaching and learning**, fewer students than the EU mean at all grades are in schools with ICT coordinators (except at grade 4) but there are more full-time ICT co-ordinators than the EU mean at grade 11 general.

Overall, Swedish schools enjoy almost unrivalled levels of equipment and connectivity but this does not seem to translate into high levels of ICT confidence or of use (particularly by teachers) in lessons, possibly owing to relatively low participation in professional development activities and uneven provision of ICT coordinators.

Analysis of the data in the *Survey of Schools: ICT and education* suggests a '*5C approach*' to addressing issues identified in the survey:

- **Capacity building**, through sustained investment in teachers' professional development
- **Concrete support measures**, accompanying specific policies at school level
- **Combined policies and actions**, in different policy areas within a systemic approach
- **Country-specific support**, addressing large differences and degrees of ICT provision and implementation
- **Competence development**: these four actions directed at increasing effectively and dramatically young people's digital competence and the key competences described in the European framework.

ANNEX

TABLES

Note: For reasons of space, only selected country-EU data tables are shown here; those for all-country charts (e.g. fig. 2.2) are available online. SE = Standard Error; w = insufficient data.

Fig. 2.1
Computers per 100 students

COUNTRY	Grade4	SE1	Grade8	SE2	Grade11gen	SE3	Grade11voc	SE4
Sweden	26.8	(3.3)	58.8	(11.6)	.	W	.	W
EU	14.5	(0.7)	21.1	(1.2)	23.2	(7.7)	33.6	(10.6)

Fig. 2.3
Broadband speed

Level	COUNTRY	NoBroadband	SE1	LessThan2	SE2	From2to5	SE3
1. Grade4	Sweden	7.3%	(2.2)	7.3%	(2.2)	14.6%	(10.7)
	EU	8.0%	(1.3)	16.5%	(2.3)	21.4%	(2.4)
2. Grade8	Sweden	2.9%	(0.8)	7.6%	(2.1)	0.0%	(0.0)
	EU	5.0%	(0.8)	9.6%	(1.3)	19.1%	(2.3)
3. Grade11gen	Sweden	0.0%	(0.0)	0.0%	(0.0)	13.7%	(7.0)
	EU	3.7%	(1.3)	6.2%	(0.8)	18.0%	(2.8)
4. Grade11voc	Sweden	0.0%	(0.0)	0.0%	(0.0)	0.0%	(0.0)
	EU	6.5%	(1.8)	6.2%	(1.3)	15.2%	(3.0)

From5to10	SE4	From10to30	SE5	From30to100	SE6	MoreThan100	SE7
7.3%	(2.2)	14.6%	(10.7)	21.9%	(12.6)	27.1%	(15.3)
22.1%	(2.2)	19.5%	(2.2)	8.6%	(1.4)	4.0%	(1.3)
7.6%	(2.1)	2.9%	(0.8)	57.0%	(14.2)	21.8%	(12.2)
27.7%	(2.4)	24.8%	(2.3)	8.6%	(1.6)	5.2%	(1.2)
18.2%	(8.7)	13.7%	(7.0)	18.2%	(8.7)	36.3%	(26.4)
23.2%	(3.0)	25.4%	(3.9)	13.3%	(2.6)	10.3%	(8.0)
13.9%	(7.1)	0.0%	(0.0)	52.7%	(26.7)	33.3%	(25.3)
21.2%	(2.6)	24.2%	(4.6)	15.7%	(7.1)	10.9%	(5.3)

Fig. 2.5
Connectedness

Level	COUNTRY	SchWebsite	SE1	VLE	SE2	NoConnect	SE3
1. Grade4	Sweden	88.7%	(8.3)	71.8%	(13.4)	5.6%	(1.5)
	EU	69.7%	(3.6)	26.8%	(2.0)	15.9%	(2.2)
2. Grade8	Sweden	93.6%	(6.8)	86.5%	(9.8)	6.4%	(1.7)

Level	COUNTRY	SchWebsite	SE1	VLE	SE2	NoConnect	SE3
	EU	86.0%	(1.6)	61.4%	(3.0)	8.4%	(1.2)
3. Grade11gen	Sweden	100.0%	(0.0)	88.4%	(13.6)	0.0%	(0.0)
	EU	91.7%	(3.1)	61.0%	(7.9)	7.0%	(2.9)
4. Grade11voc	Sweden	100.0%	(0.0)	80.6%	(22.7)	0.0%	(0.0)
	EU	93.1%	(1.8)	63.5%	(4.7)	5.8%	(1.6)

Fig. 3.1

ICT equip use by teachers

Level	COUNTRY	MoreThan75	SE1	From51to75	SE2	From25to50	SE3	From11to24	SE4	From6to10	SE5
1. Grade4	Sweden	5.0%	(1.2)	5.0%	(1.2)	18.1%	(9.0)	25.1%	(10.5)	36.7%	(11.8)
	EU	3.0%	(0.4)	10.0%	(2.4)	13.9%	(1.4)	18.0%	(1.8)	19.1%	(2.1)
2. Grade8	Sweden	10.5%	(5.2)	7.0%	(3.1)	20.4%	(5.7)	18.5%	(6.3)	17.5%	(5.4)
	EU	7.4%	(1.0)	6.8%	(0.8)	14.7%	(0.9)	20.7%	(1.2)	18.9%	(1.4)
3. Grade11gen	Sweden	0.0%	(0.0)	5.9%	(4.4)	14.8%	(8.6)	57.4%	(12.4)	8.0%	(4.7)
	EU	7.0%	(1.0)	8.1%	(1.4)	14.9%	(1.4)	22.9%	(3.8)	17.1%	(1.8)
4. Grade11voc	Sweden	17.3%	(9.3)	16.4%	(7.4)	12.0%	(6.3)	37.9%	(8.4)	10.2%	(7.4)
	EU	19.3%	(1.4)	12.1%	(1.2)	16.8%	(1.0)	19.3%	(2.8)	13.2%	(1.3)

From1to5	SE6	LessThan1	SE7	DontKnow	SE8
10.0%	(7.3)	0.0%	(0.0)	0.0%	(0.0)
20.7%	(2.7)	8.7%	(1.4)	6.7%	(1.4)
17.3%	(5.7)	4.0%	(2.9)	4.8%	(2.8)
14.4%	(1.0)	11.0%	(1.0)	6.1%	(0.8)
4.6%	(3.6)	0.0%	(0.0)	9.3%	(7.2)
14.0%	(1.5)	10.3%	(1.4)	5.7%	(0.9)
0.0%	(0.0)	6.1%	(2.0)	0.0%	(0.0)
9.0%	(1.5)	6.8%	(1.1)	3.5%	(0.5)

Fig. 3.2

Frequency of ICT use by teachers

COUNTRY	Grade4	SE1	Grade8	SE2	Grade11gen	SE3	Grade11voc	SE4
Sweden	28.1%	(10.7)	39.8%	(7.6)	22.8%	(9.8)	45.8%	(14.3)
EU	28.8%	(2.6)	32.0%	(1.6)	31.8%	(1.8)	49.9%	(2.1)

Fig. 3.3

Using ICT equipment

Level	Country	OwnMobPhone	SE1	OwnLaptop	SE2	SchoolComputer	SE3
1. Grade8	Sweden	43.9	(3.0)	6.4	(1.1)	55.2	(5.0)
	EU	28.0	(0.8)	11.2	(0.7)	53.3	(1.1)
2. Grade11gen	Sweden	49.6	(4.2)	11.9	(5.3)	61.9	(5.4)
	EU	34.6	(1.3)	10.7	(1.1)	50.5	(1.5)

Level	Country	OwnMobPhone	SE1	OwnLaptop	SE2	SchoolComputer	SE3
3. Grade11voc	Sweden	53.2	(4.6)	.	(W)	71.8	(11.0)
	EU	45.6	(1.3)	15.5	(0.7)	64.3	(1.5)

Fig. 4.1

Scales Teachers ICT skills

Level	COUNTRY	SocialMediaSkills	SE1	OperatSkills	SE2
1. Grade4	Sweden	2.51	(0.23)	3.07	(0.12)
	EU	2.41	(0.03)	2.98	(0.02)
2. Grade8	Sweden	2.66	(0.10)	3.11	(0.09)
	EU	2.37	(0.04)	3.00	(0.03)
3. Grade11gen	Sweden	2.74	(0.22)	3.01	(0.09)
	EU	2.38	(0.07)	3.01	(0.03)
4. Grade11voc	Sweden	2.54	(0.20)	3.10	(0.13)
	EU	2.51	(0.03)	3.16	(0.02)

Fig. 4.2

Scales Students ICT skills

Level	country	SocialMediaSkills	SE1	OperatSkills	SE2	RespInternUse	SE3	SafeInternUse	SE4
1. Grade8	Sweden	2.66	(0.07)	2.69	(0.06)	2.70	(0.07)	2.87	(0.06)
	EU	2.41	(0.02)	2.63	(0.02)	2.58	(0.02)	2.98	(0.02)
2. Grade11gen	Sweden	2.97	(0.10)	2.86	(0.08)	3.14	(0.13)	3.16	(0.11)
	EU	2.78	(0.02)	2.88	(0.01)	2.93	(0.03)	3.16	(0.02)
3. Grade11voc	Sweden	2.77	(0.11)	2.83	(0.09)	2.92	(0.10)	3.07	(0.12)
	EU	2.55	(0.02)	2.78	(0.02)	2.75	(0.02)	2.98	(0.02)

Fig. 5.1

Time in professional development

Level	COUNTRY	MoreThan6	SE1	From1to3	SE2	NoTime	SE3
1. Grade4	Sweden	26.4%	(11.1)	23.0%	(10.0)	9.3%	(6.7)
	EU	47.5%	(4.2)	19.4%	(3.0)	11.9%	(2.4)
2. Grade8	Sweden	17.6%	(6.0)	27.2%	(6.9)	9.3%	(3.7)
	EU	60.7%	(1.6)	15.6%	(1.0)	5.2%	(0.5)
3. Grade11gen	Sweden	16.7%	(8.3)	43.8%	(14.6)	7.7%	(5.7)
	EU	44.7%	(5.2)	23.1%	(3.4)	11.0%	(1.6)
4. Grade11voc	Sweden	40.0%	(16.3)	34.2%	(14.1)	0.0%	(0.0)
	EU	49.4%	(3.2)	20.5%	(3.0)	9.7%	(1.6)

Fig. 5.2

Type of training

Level	COUNTRY	OnlineComm	SE1	ICTtraining	SE2	PersonalLearning	SE3
1. Grade4	Sweden	27.3%	(10.5)	47.7%	(11.9)	55.2%	(11.8)

Level	COUNTRY	OnlineComm	SE1	ICTtraining	SE2	PersonalLearning	SE3
	EU	25.4%	(2.5)	40.3%	(3.2)	70.0%	(2.8)
2. Grade8	Sweden	28.4%	(7.0)	47.1%	(7.9)	53.7%	(7.6)
	EU	30.8%	(1.6)	50.5%	(1.7)	74.2%	(1.3)
3. Grade11gen	Sweden	17.0%	(10.5)	49.7%	(13.4)	57.1%	(13.9)
	EU	28.0%	(2.4)	43.5%	(2.2)	71.7%	(2.2)
4. Grade11voc	Sweden	21.1%	(9.7)	54.4%	(16.2)	68.8%	(10.0)
	EU	28.2%	(1.5)	41.4%	(3.6)	70.8%	(1.5)

Fig. 6.1
ICT Coordinator

COUNTRY	Grade4	SE1	Grade8	SE2	Grade11gen	SE3	Grade11voc	SE4
Sweden	77.4%	(11.0)	76.0%	(12.0)	46.1%	(24.2)	52.7%	(26.7)
EU	62.0%	(3.6)	79.6%	(1.9)	67.7%	(4.8)	69.7%	(3.5)

Fig. 6.2
Type of ICT coordinator

Level	COUNTRY	AvailFullTime	SE1	Rewarded	SE2	ProvPedSupport	SE3
1. Grade4	Sweden	21.9%	(12.6)	76.4%	(13.6)	92.7%	(7.8)
	EU	39.3%	(3.0)	56.5%	(3.0)	75.9%	(2.3)
2. Grade8	Sweden	31.1%	(15.1)	72.0%	(15.1)	68.5%	(15.2)
	EU	34.8%	(2.9)	70.6%	(2.4)	72.5%	(2.5)
3. Grade11gen	Sweden	100.0%	(0.0)	100.0%	(0.0)	100.0%	(0.0)
	EU	49.6%	(6.9)	63.6%	(7.7)	73.4%	(4.2)
4. Grade11voc	Sweden	63.2%	(47.6)	100.0%	(0.0)	100.0%	(0.0)
	EU	49.7%	(3.3)	63.6%	(4.6)	71.5%	(3.9)

Fig. 6.3
Incentives

Level	COUNTRY	TrainingHours	SE1	Equipment	SE2	Competitions	SE3	FinancialInc	SE4	ReductionHours	SE5	Other	SE6
1. Grade4	Sweden	22.6%	(11.0)	33.9%	(12.5)	0.0%	(0.0)	16.9%	(9.8)	16.9%	(9.8)	14.3%	(10.4)
	EU	30.1%	(4.5)	26.6%	(3.8)	12.9%	(2.4)	13.0%	(2.1)	2.9%	(0.6)	12.8%	(2.3)
2. Grade8	Sweden	26.4%	(12.1)	29.4%	(12.3)	0.0%	(0.0)	20.9%	(11.7)	2.7%	(0.7)	9.0%	(2.6)
	EU	34.1%	(2.6)	33.6%	(1.9)	13.3%	(1.6)	10.0%	(1.0)	1.5%	(0.4)	14.8%	(1.8)
3. Grade11gen	Sweden	15.4%	(6.8)	27.0%	(20.9)	0.0%	(0.0)	11.6%	(5.3)	0.0%	(0.0)	0.0%	(0.0)
	EU	36.9%	(9.1)	37.7%	(3.5)	17.6%	(4.4)	14.3%	(2.8)	1.7%	(0.7)	15.3%	(5.0)
4. Grade11voc	Sweden	0.0%	(0.0)	0.0%	(0.0)	0.0%	(0.0)	0.0%	(0.0)	0.0%	(0.0)	0.0%	(0.0)
	EU	41.6%	(8.1)	43.4%	(7.7)	17.8%	(4.2)	19.4%	(4.9)	4.3%	(1.3)	18.7%	(4.5)

Fig. A

Digitally supportive schools

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3	Type4	SE4
1. Grade4	Sweden	28	(11.87)	27	(12.73)	28	(11.87)	17	(9.82)
	EU	31	(2.70)	17	(3.17)	22	(2.53)	31	(2.98)
2. Grade8	Sweden	26	(11.96)	33	(13.00)	7	(1.88)	34	(13.13)
	EU	25	(1.91)	25	(2.20)	16	(1.83)	34	(2.15)
3. Grade11gen	Sweden	27	(20.94)	46	(24.16)	12	(5.34)	15	(6.77)
	EU	26	(2.28)	15	(8.69)	25	(3.74)	34	(5.30)
4. Grade11voc	Sweden	14	(7.26)	14	(7.26)	0	(0.0)	72	(22.67)
	EU	25	(3.12)	7	(2.21)	34	(7.50)	34	(8.58)

Fig. B

Digitally supportive teachers

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3	Type4	SE4
1. Grade4	Sweden	31	(11.41)	31	(10.75)	15	(8.81)	23	(9.85)
	EU	18	(2.02)	33	(2.95)	25	(2.33)	24	(2.64)
2. Grade8	Sweden	11	(4.43)	32	(8.08)	35	(7.66)	21	(5.13)
	EU	23	(1.43)	31	(1.27)	24	(1.52)	22	(1.17)
3. Grade11gen	Sweden	31	(11.66)	15	(11.51)	31	(10.19)	23	(13.59)
	EU	28	(2.41)	27	(2.68)	26	(1.65)	19	(1.67)
4. Grade11voc	Sweden	26	(9.64)	4	(1.26)	43	(12.71)	28	(12.14)
	EU	25	(1.49)	20	(2.69)	26	(2.83)	28	(1.67)

Fig. C

Digitally supportive students

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3
1. Grade8	Sweden	31	(3.72)	56	(3.43)	13	(2.18)
	EU	31	(1.00)	50	(0.85)	19	(0.67)
2. Grade11gen	Sweden	53	(5.41)	39	(4.63)	9	(2.32)
	EU	36	(1.18)	36	(1.00)	28	(1.47)
3. Grade11voc	Sweden	38	(8.29)	54	(8.70)	7	(3.35)
	EU	29	(1.60)	53	(1.03)	18	(1.37)

Fig. D

Digitally equipped Schools

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3
1. Grade4	Sweden	94	(6.01)	0	(0.0)	6	(1.49)
	EU	37	(4.43)	48	(4.15)	15	(2.12)
2. Grade8	Sweden	12	(8.37)	81	(10.33)	6	(1.72)
	EU	68	(2.87)	24	(3.31)	8	(1.16)
3. Grade11gen	Sweden	100	(0.00)	0	(0.0)	0	(0.0)
	EU	55	(12.27)	39	(10.34)	5	(2.06)
4. Grade11voc	Sweden	0	(0.0)	100	(0.00)	0	(0.0)
	EU	6	(1.88)	50	(13.83)	44	(12.07)

NOTES

EU mean. In this report, 'EU mean' refers to the weighted average for the 27 countries in the survey (EU27 without Germany, Netherlands and the United Kingdom, Croatia, Norway and Turkey).

Confidence. Teachers and students were asked to rate their level of confidence in their ability to perform ICT related tasks according to a scale ranging from 'not at all' to 'a lot'. By subjecting the data to factorial analysis four scales emerged from the list of items. These included operational skills and social media skills and two additional scales related to students' ability to use the internet safely and responsibly. For a detailed definition of these skills, please refer to section 4 of the survey report.

Participation. For the Survey of Schools: ICT and Education, 300 schools in Sweden were selected at random at each of four levels (grade 4, 8, 11 general and 11 vocational) and invited to participate in the survey. Fig. 8.1 shows the percentage of those schools in which at least one survey questionnaire was submitted, the EU average ranging from 35 to 40 percent depending on the grade. In Sweden participation levels are low, particularly at grade 11, and so results should be interpreted with this in mind.

Fig. 8.1: Participation rates
(% of sampled schools with at least one questionnaire completed, all grades, Sweden and EU, 2011-12)