SURVEY OF SCHOOLS: ICT IN EDUCATION

COUNTRY PROFILE: FINLAND

November 2012

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1. INTRODUCTION

ICT IN THE SCHOOL EDUCATION SYSTEM OF FINLAND

In Finland[1], education is the responsibility of the ministry of Education and Culture. The Finnish National Board of Education works with the Ministry to develop educational aims, content and methods for primary, upper secondary and adult education. The national education administration steers the provision and development of education and training mainly through funding and information. Local autonomy in education is quite extensive in Finland with local administration the responsibility of municipalities. Municipalities provide most of primary and upper secondary education in Finland and commonly give individual schools a large autonomy in designing their own curricula and education. All education in Finland is free of charge. Compulsory education begins at the age of 7 and lasts for 9 years and is provided in a single structure system called basic education.

According to Eurydice's **Key Data on Learning and Innovation through ICT at school in Europe**[2], in Finland there are national strategies covering training measures and research projects in ICT in schools, e-learning, e-inclusion, digital/media literacy and, e-skills development. There are central steering documents for ICT learning objectives[3] at both primary and secondary education level for using a computer, using office applications, searching for information, and using multimedia. 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 there are recommendations or suggestions and support in ICT hardware areas and for ICT software categories[4] recommendations or suggestions are provided for office applications. According to official steering documents, both students and teachers at secondary level are expected to use ICT in all subjects both in class and for complementary activities. 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, ICT training for teachers, ICT training for pupils/students, and providing extra-curricular activities.

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

[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/

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 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.

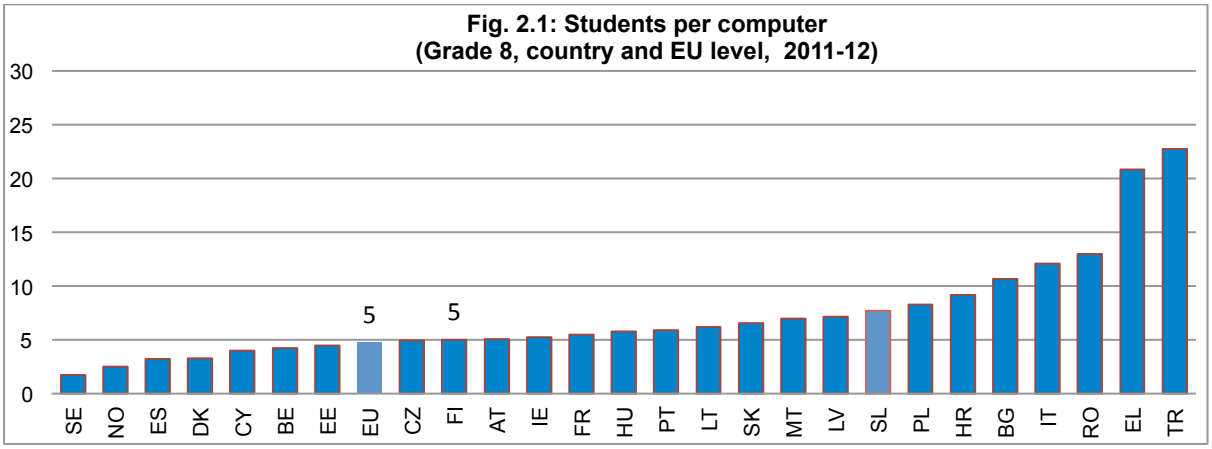
2. ICT INFRASTRUCTURE

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 Finland there are computers available for students at or above the EU average at all grades and at grade 11 vocational there are considerably more. In most countries the older the student the more the computers, and this is also the case in Finland (see main report fig. 1.1).

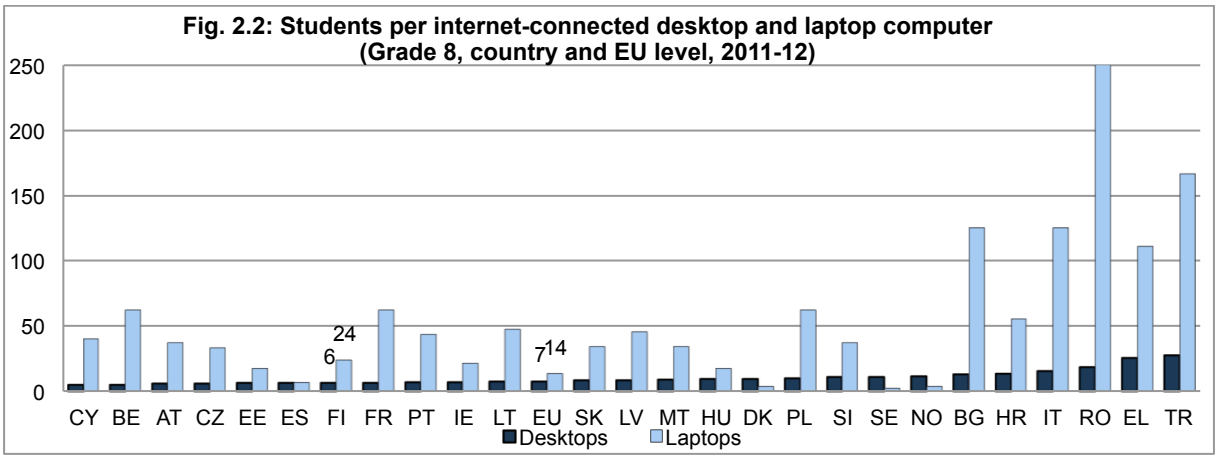
Fig. 2.1 shows that at grade 8 Finland is in the leading group of countries on this indicator with 5 students per computer. Finland ranks higher at all other grades, eighth at grade 4, seventh at grade 11 general, and with a ratio of 2 students per computer, third compared with other countries at grade 11 vocational (see main report fig. 1.1).

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



As for computers connected to the internet at grade 8 (fig. 2.2), in Finland most computers are desktops, with ratios of students to internet-connected desktop computers close to the the EU average at grade 8. In terms of internet-connected laptop computers at grade 8 Finland ranks among the leading group of countries, fourth at grade 11, and with a ratio of 8 students per laptops at grade 11 general, double the EU average, but at grade 4 it is in the middle group of countries (see main report fig 1.2).

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



Computers are divided almost equally between dedicated labs and classroom or other locations at all grades, but with a higher level of computers located in labs at grade 11 (main report, fig. 1.3). Finland is ranked at grade 8, fifth highest at 89% compared to the EU average of 76 % of students, in schools

where over 90% of computers are operational (main report, fig. 1.4). More students have access to interactive whiteboards, among the leading group of countries at all grades,except at grade 4 where Finland is below the EU average (main report, fig. 1.5).

BROADBAND

In Finland the number of students in schools without broadband is lower than the EU average at grades, and at grade 4 all are connected. At all grades, the percentage of students in schools with broadband speeds faster than 10mbps, is considerably higher than the EU mean. High percentages of students are in schools with more than 100 mbps – nearly 50% at grade 11 vocational.

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

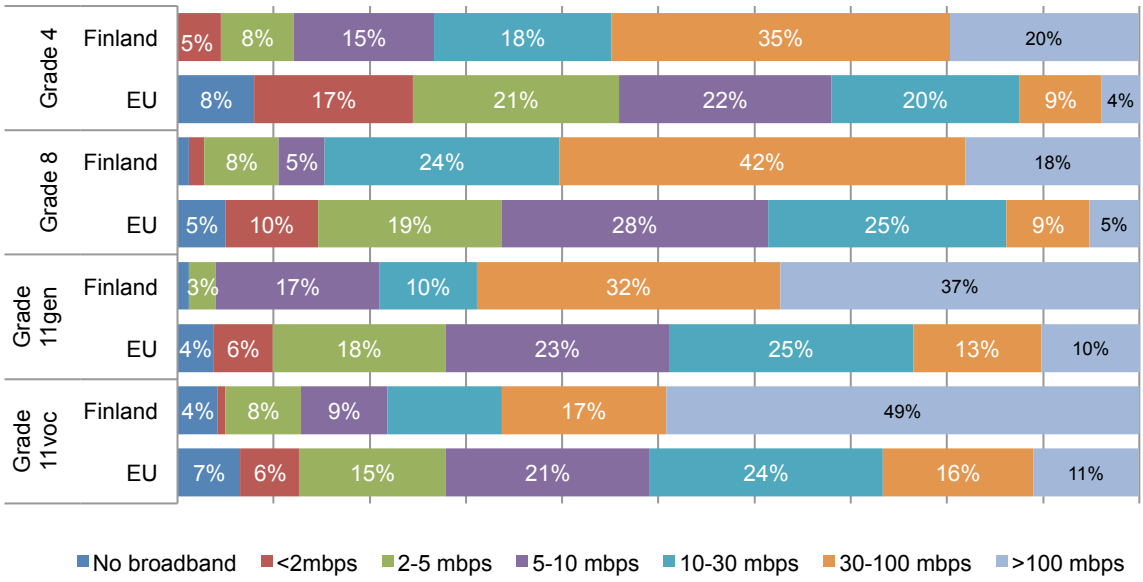
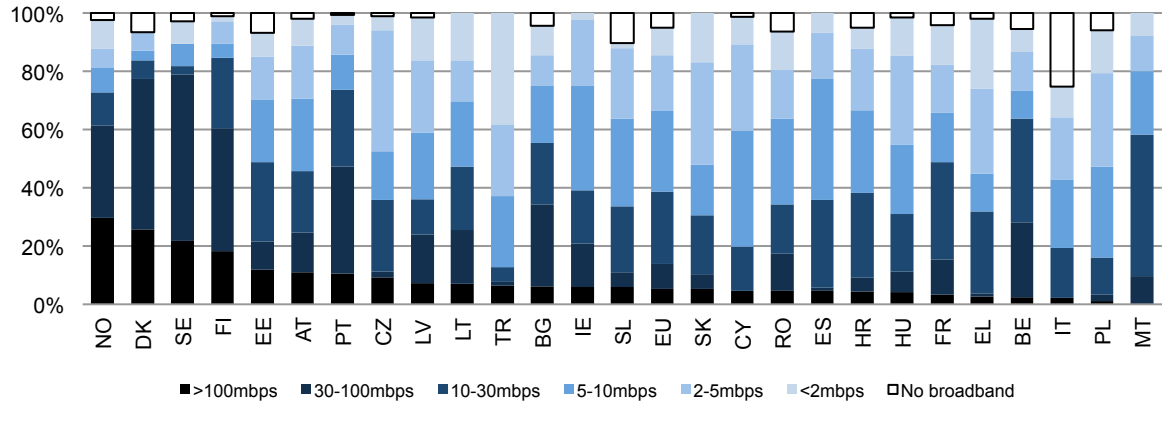


Figure 2.4 shows how Finland compares with other countries at grade 8: ranked among the leading group of countries for the percentage of students in schools with more than 100 mbps, with close to 90% above 10mpbs. Finland also ranks among the leading group of countries at other grades (main report fig 1.8).

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

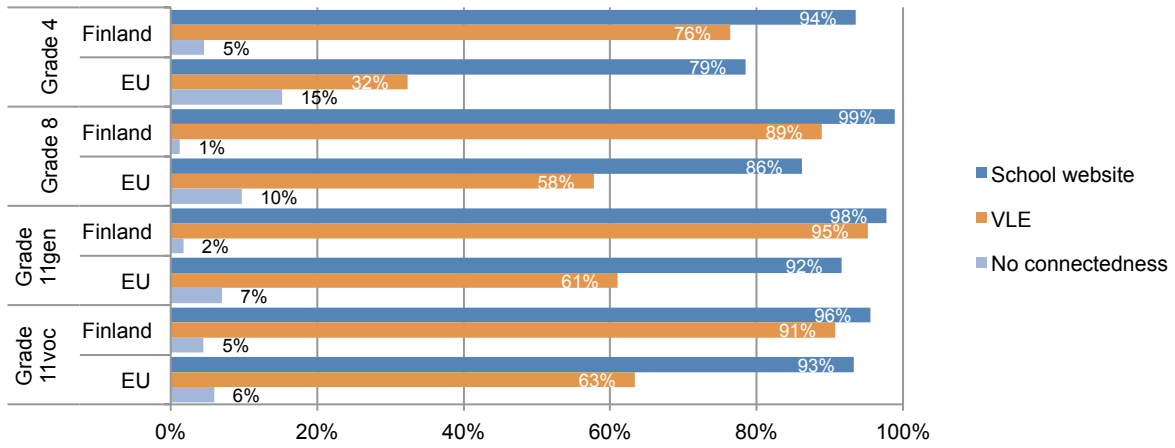


There are significant positive correlations between the population size of the school's locality and broadband speed in Finland at grade 4 (main report, section 1).

'CONNECTEDNESS'

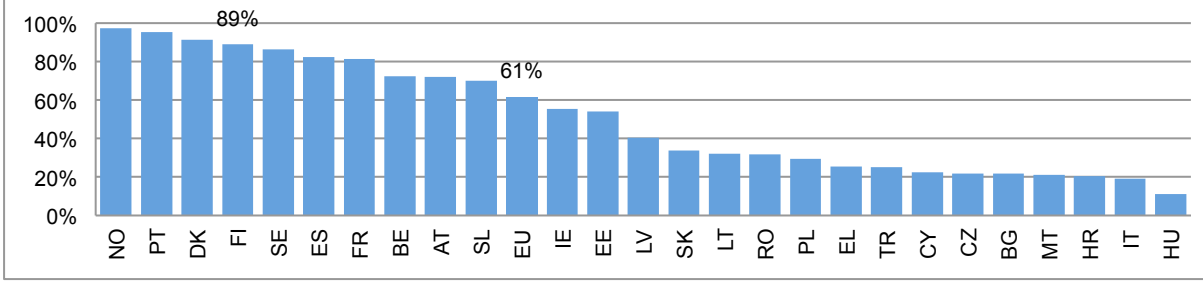
In Finland, the percentage of students in schools with a website is above the EU mean at all grades. There are a notably higher percentage of students in schools with a virtual learning environment than the EU mean at all grades. There are very few 'unconnected' schools at any grade, well below the EU average, except at grade 11 vocational which is close to the average.

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



Finland ranks well above other countries as regards virtual learning environments at grade 8, as seen in fig. 2.6, and among the leading group of countries 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)



In Finland of schools with VLEs, the majority offer external access at all grades, among the leading group of countries on this measure, except at grade 11 vocational where they rank in the middle group (main report section 1).

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 Finland use of ICT by teachers at all grades is close to the EU average. There are more teachers using ICT in more than 25% of lessons, above the EU average, at grade 8 and close to the average at other grades. The most intense use is at grade 11 vocational where nearly a third use ICT with their students in more than 50% of lessons.

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

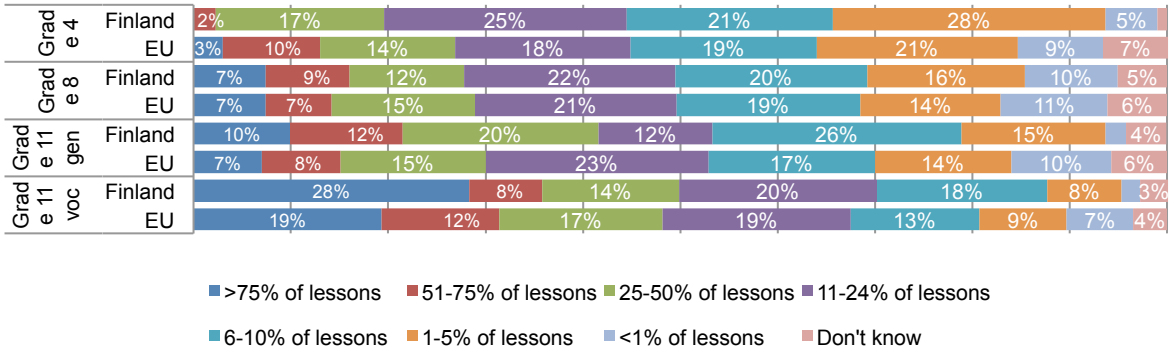
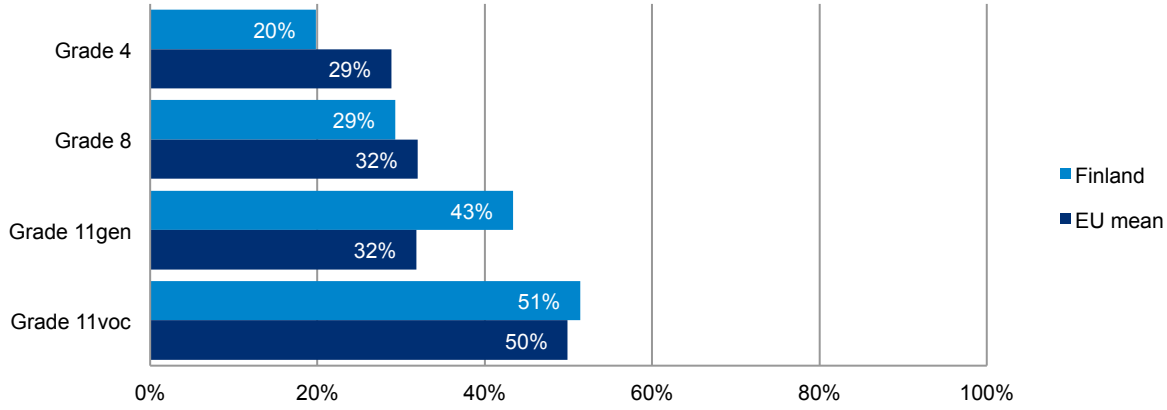
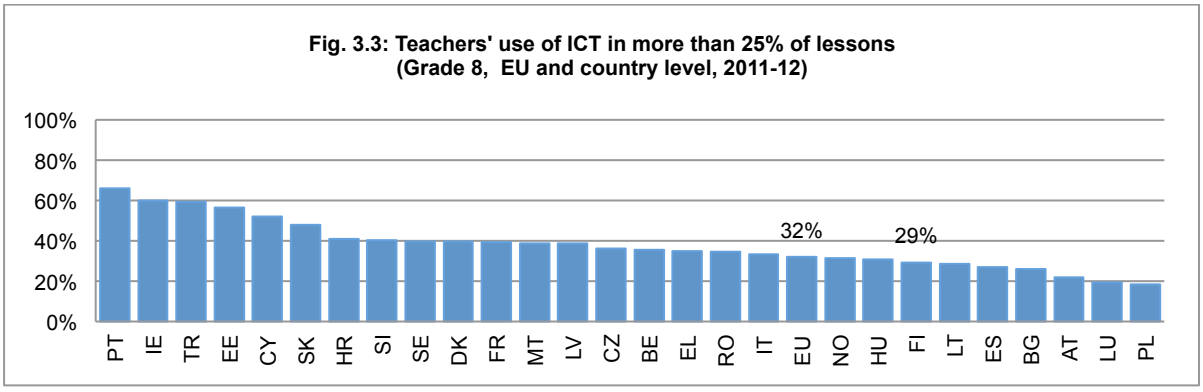


Fig. 3.2: Teachers' use of ICT in at least 25% of lessons
(% students, Finland and EU, 2011-12)



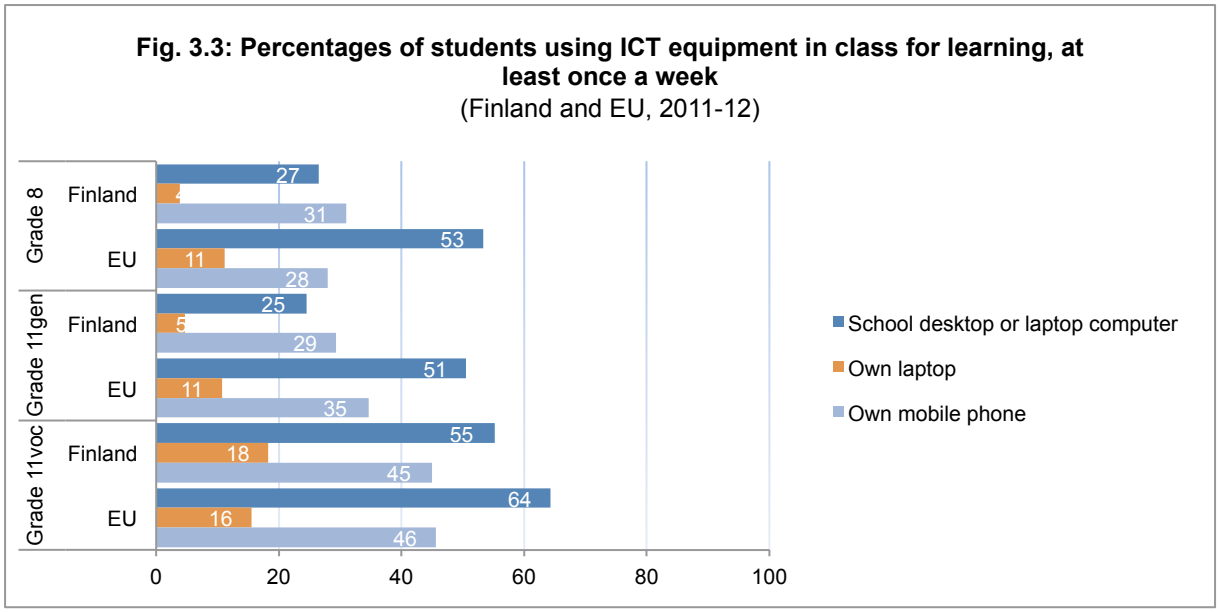
Teachers in Finland are relatively low users of ICT in lessons compared to other countries, at least at the grades surveyed, when considering percentages using ICT in more than one in four lessons. Fig 3.3 shows Finland ranks in the bottom group of countries at grade 8, and this is the case at other grades (see main report, fig. 2.2), except for at grade 11 general where it ranks among the leading group of countries.



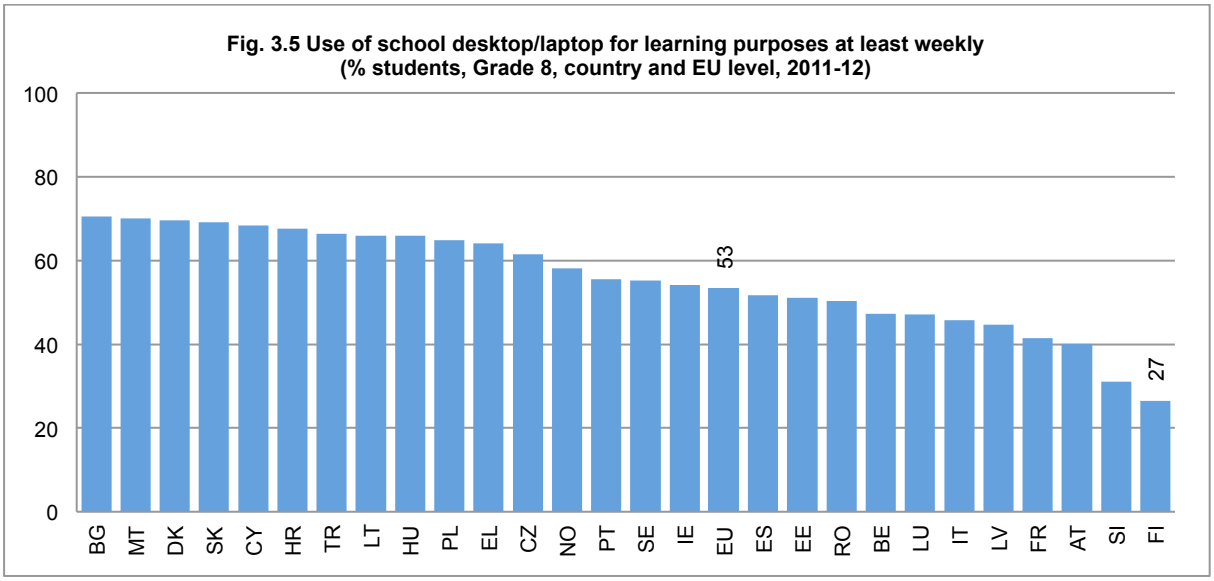
Finland is among the leading group of countries as regards teachers' use of ICT for more than six years in lessons (main report, fig 3.2). Finland is also among the leading group of countries in terms of student-centred learning, ranked fifth at grades 4 and 8 (fig. 3.5), but in the middle group of countries at grade 11 (main report, fig. 3.5).

STUDENTS' ICT USE

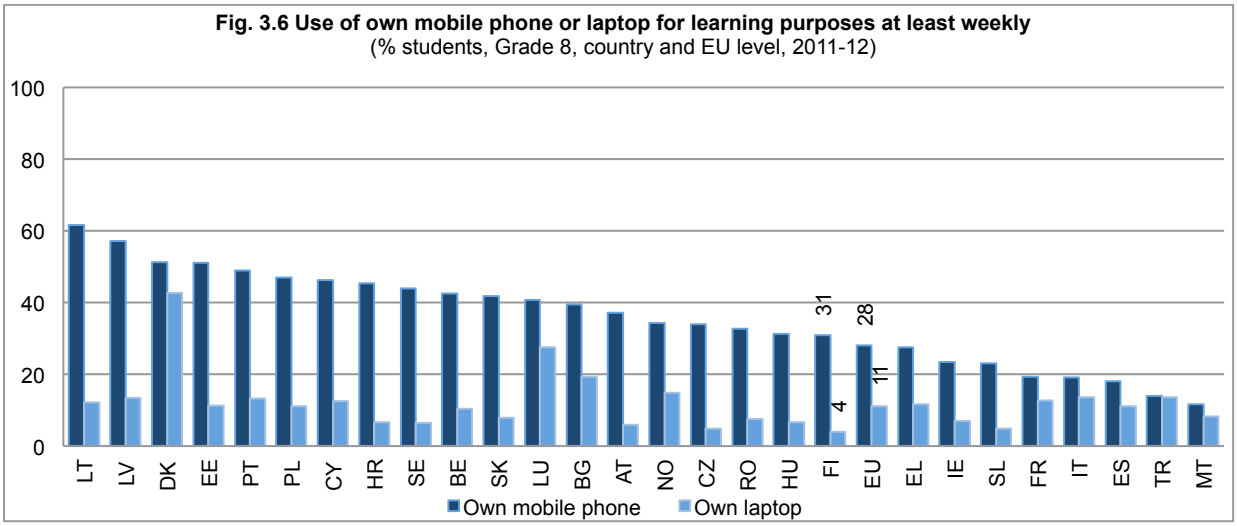
Students at grade 8 and 11 were asked how frequently they used various items of ICT equipment in their lessons for learning purposes. The chart below shows their reported intensity of use of a school computer, and their own laptop or mobile phone. In Finland student use of computers in class is considerably below the EU mean at all grades except 11 vocational. The use of student's own laptop is generally below the EU mean but slightly above at grade 11 vocational. Mobile phone usage is close to the EU mean at all grades.



At grade 8 students' reported use of school computers is the lowest in the EU, with only 27% saying they use them at least once a week (fig. 3.5) and also among the lowest group of countries at grade 11 (main report, fig. 2.5).



Compared to other countries at grade 8 (fig.3.6), students in Finland are average users of their own mobile phone, but there is much less use of their own laptop in school. At other grades these figures are similar, although closer to the EU average in terms of mobile phone use at grade 11 vocational (main report, fig. 2.5).



Students report using interactive whiteboards much less frequently than the EU average at all grades; at grade 11 vocational Finland ranks among the lowest group of countries on this measure.

Concerning students' ICT-based activities during lessons, Finland is among the bottom group of countries as measured by frequency of use at all grades (main report, fig. 3.8)

4. DIGITAL CONFIDENCE

TEACHERS

In Finland teachers' confidence in their operational skills with ICT is slightly below the EU mean at all grades, and their confidence in their social media skills is higher at all grades.

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'; Finland and EU; 2011-12)

Fig. 4.1a: grade 4

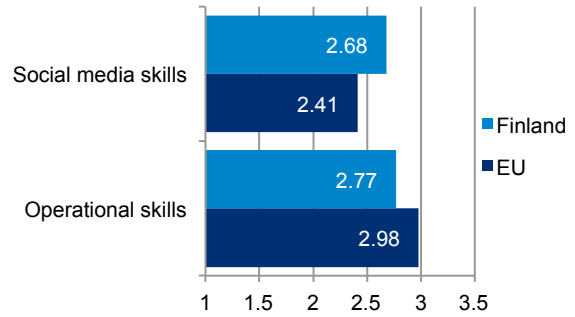


Fig. 4.1b: grade 8

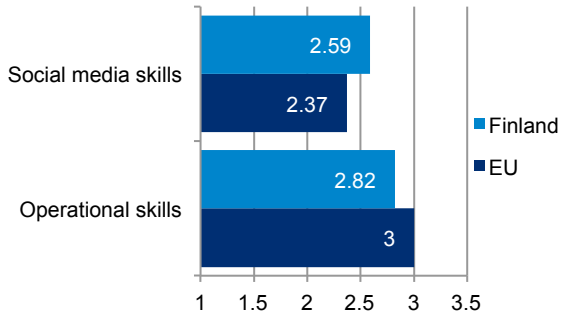


Fig. 4.1c: grade 11 gen.

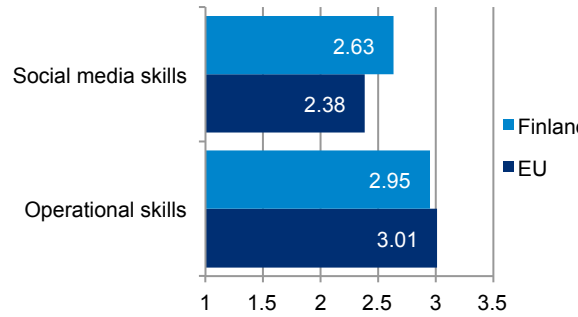
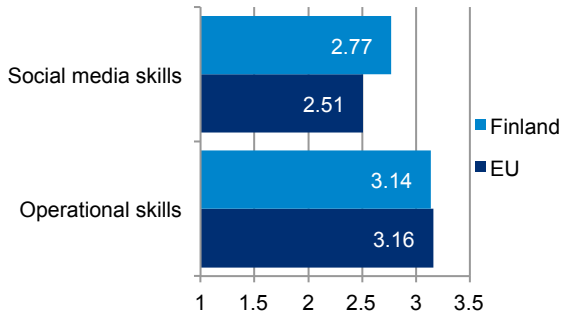
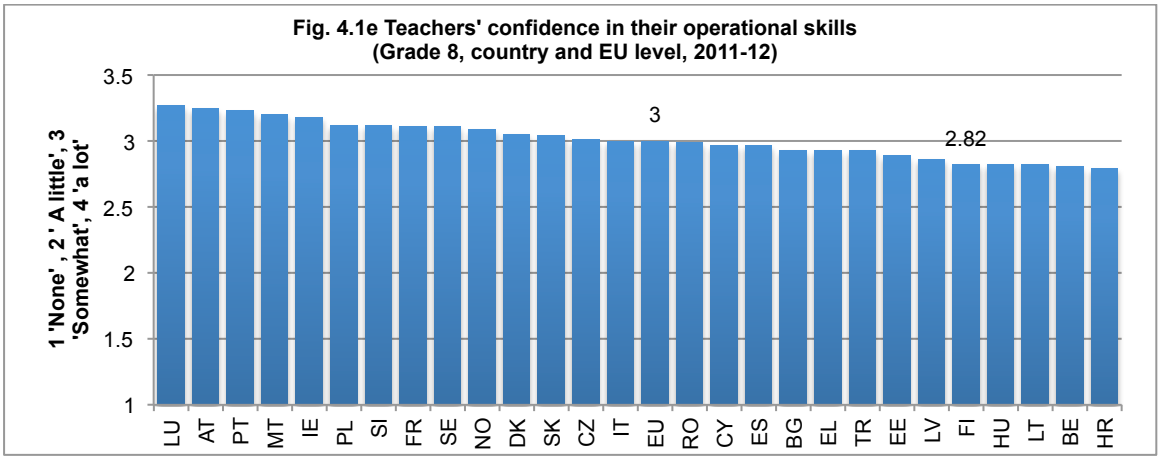


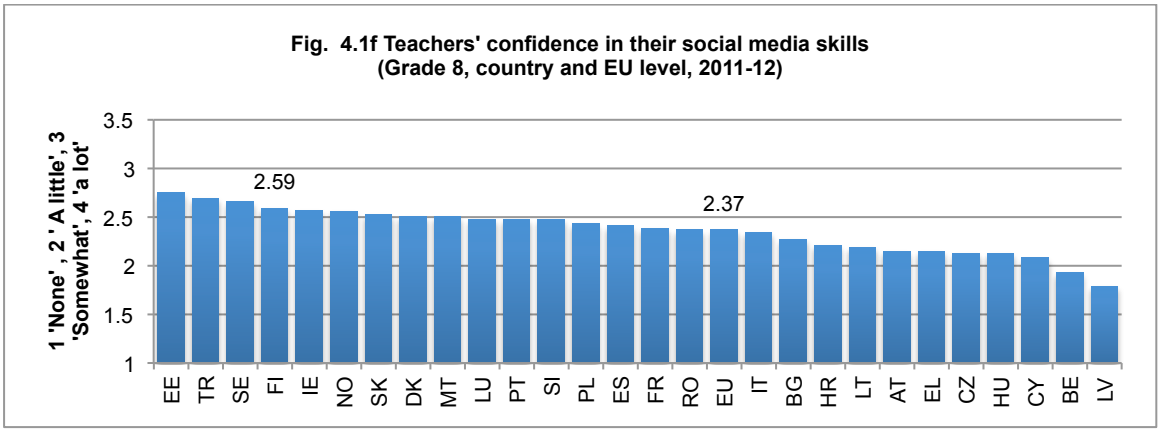
Fig. 4.1d: grade 11 voc.



Comparing confidence levels at grade 8, teachers' confidence in their operational skills places Finland fifth lowest, among the bottom group of countries (fig. 4.1e), but higher at grade 11 (main report, fig. 4.13).



At grade 8 Finnish teachers are fourth as regards social media confidence (fig. 4.1f) and ranked in the top five at other grades, among the leading group of countries (main report, fig. 4.14).



In Finland students' confidence in their operational ICT skills is close to the EU mean (close to 'somewhat'), slightly below at grade 11 vocational. Their confidence in social media skills is above the EU mean at all grades, except for grade 11 vocational where it is lower.

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'; Finland and EU; 2011-12)

Fig. 4.2a: grade 8

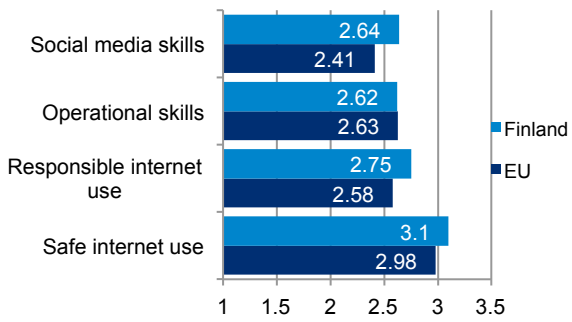


Fig. 4.2b: grade 11 gen.

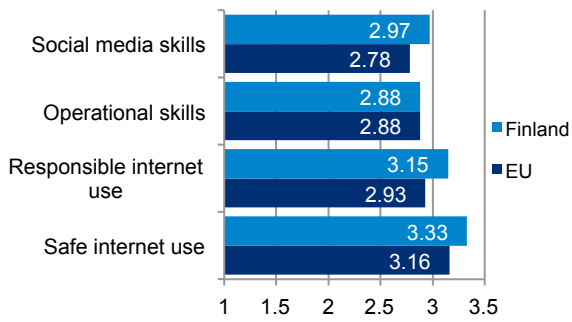
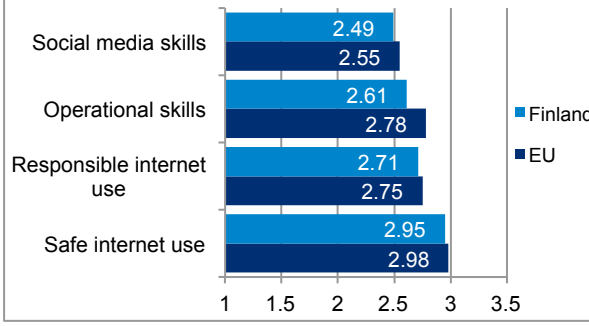
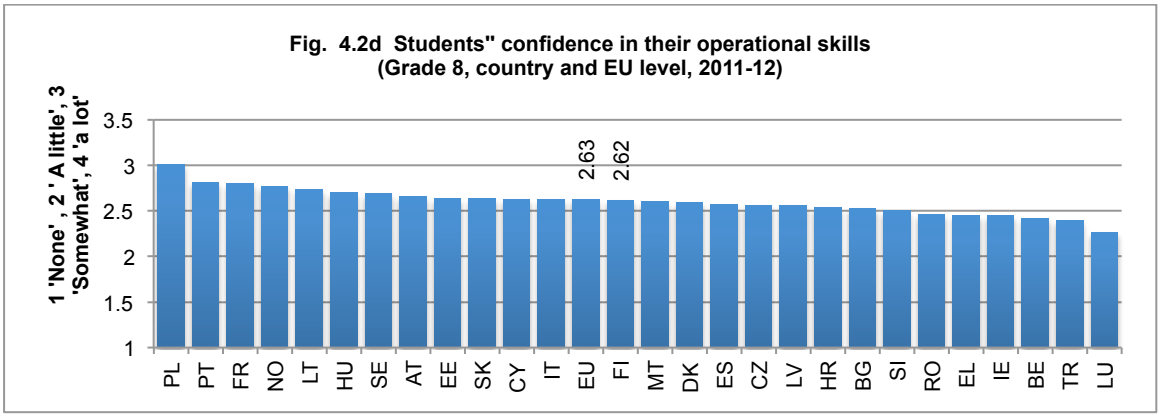


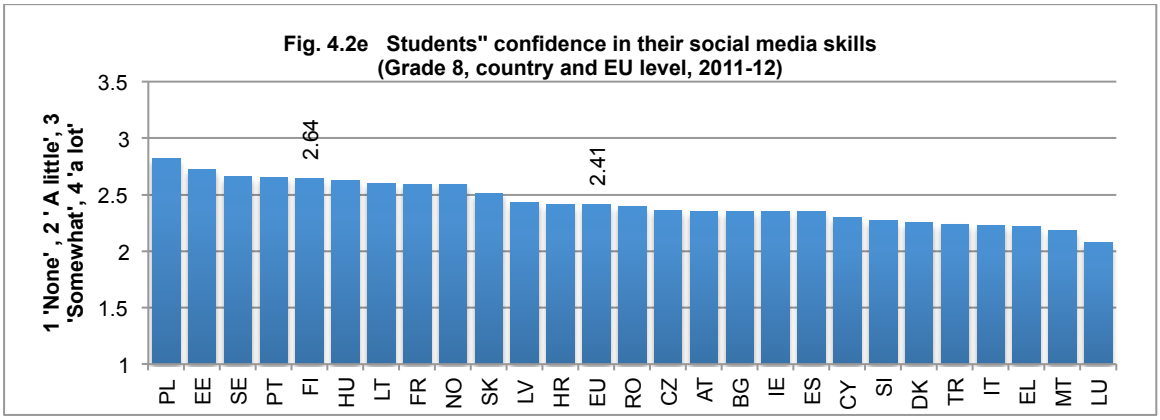
Fig. 4.2c: grade 11 voc.



Confidence in operational skills is around the EU mean amongst grade 8 students (fig. 4.2d), as is the case at grade 11 general, but among the bottom group of countries at grade 11 vocational (main report fig. 4.18).



Finland is in the top countries four for confidence in social media competence at grade 8 (fig. 4.2e) and grade 11 general, and in the middle group of countries at grade 11 vocational (main report, fig. 4.19).



At grade 8 and grade 11 general students in Finland rank in the top five among the leading group of countries, and at grade 11 vocational 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), ranking first in the latter indicator at grade 11 general.

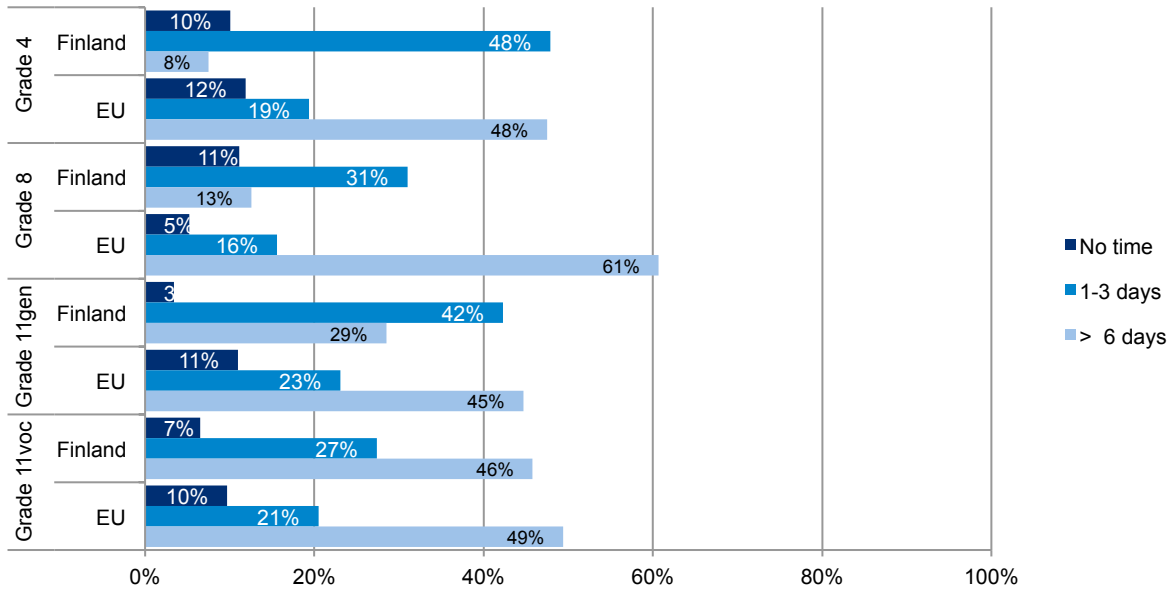
5. PROFESSIONAL DEVELOPMENT

TIME SPENT ON TRAINING

Strikingly much fewer students at grade 4 and grade 8 in Finland 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 11 students both in general and vocational education, albeit to a much lesser extent, especially at vocational level where the situation in Finland is close to the EU average.

In Finland more students are in schools where teachers have spent between 1 and 3 days on ICT professional development activities is above the EU mean, notably at grade 4 and 11 general. Those who have spent no time are below to the EU mean at all grades, except at grade 8 which is above.

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'; Finland and EU; 2011-12)



ENGAGEMENT IN TRAINING

As Fig. 5.2 below shows, in Finland more than the EU average of students at all grades are in schools where teachers have recently undergone ICT training provided by school staff, except at grade 8 which is lower. More students are in schools where teachers take part in training through online communities than the EU average at grade 11 but lower at other grades. Considerably fewer students are in schools where teachers have recently engaged in personal learning at all grades.

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

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

Fig. 5.2a: grade 4

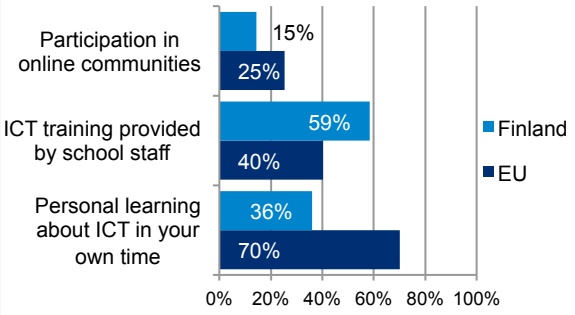


Fig. 5.2b: grade 8

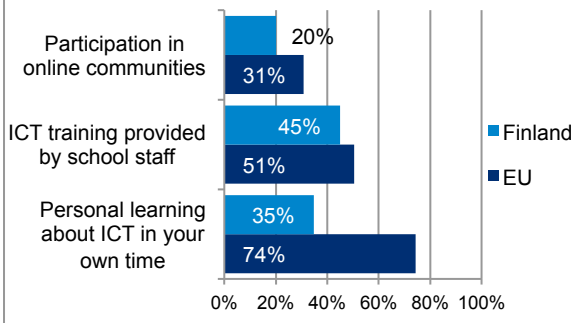


Fig. 5.2c: grade 11 gen.

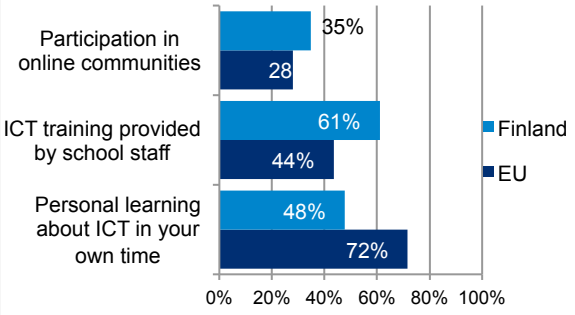


Fig. 5.2d: grade 11 voc.

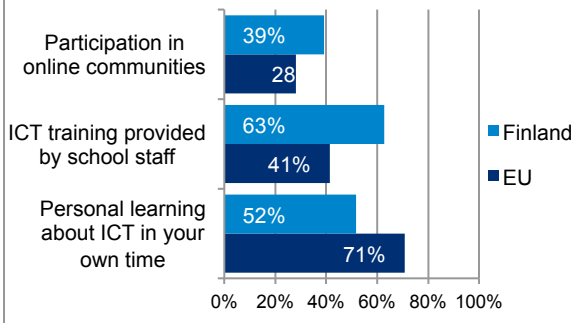
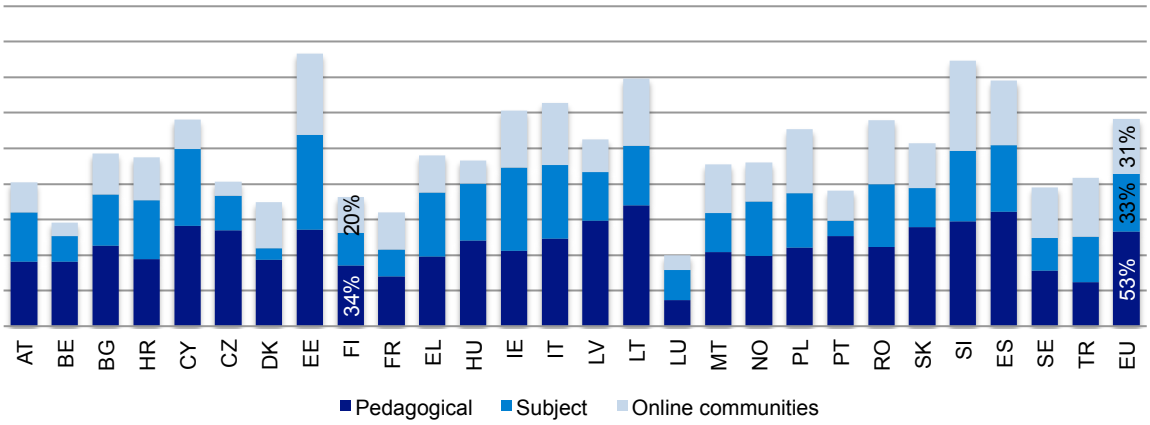


Fig. 5.2e shows that grade 8 teachers in Finland have taken part in less professional development in subject-specific or taken part in online communities, or pedagogical training than the EU mean.

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



In Finland at grade 4 and grade 8 percentages of students taught by teachers for whom ICT training is compulsory are among the lowest in the EU (main report, fig. 4.2), and at grade 11 close to the EU level.

As regards involvement in personal learning about ICT in their own time (main report, fig. 4.4), percentages (in the range 36% to 48%) are the lowest at all grades, except for grade 11 vocational where Finland ranked second lowest in the bottom group of countries, significantly below the EU mean at all grades.

The percentage of students taught by teachers participating in training provided by school staff is the middle group of countries at grade 8, but ranks sixth at grade 11 vocational, and is among the leading group of countries at other grades (main report, fig. 4.5).

Between 3 and 11 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); above the EU mean at grade 8 but lower at other grades.

6. SCHOOL SUPPORT MEASURES

Students in Finland are in schools where above EU averages of ICT strategies are implemented (main report, fig. 5.3), in the top group of countries at grade 4 and grade 11 general, and the middle group of countries at other grades. There are notably below average percentages of students in schools with strategies to support teacher collaboration at all grades, with Finland among the lowest group of countries, ranked bottom at grade 8 (main report, fig. 5.7), except at grade 11 vocational where Finland at 46%, ranked fifth is one of the leading group of countries. At most grades Finland is in the middle group of countries as regards strategies about responsible internet and social media use (main report, fig. 5.10), except at grade 11 vocational where 45% of students are in schools where they are in place, among the leading group of countries.

However Finland is among the leading group of countries at all grades for percentages of students in schools with change management programmes (third, with 75% of schools at grade 11 vocational (main report, fig. 5.14)), except at grade 11 general where they are in the middle group.

ICT COORDINATOR

In Finland, compared to the situation at EU level (see Fig. 6.1), more students are in schools where ICT coordinators are provided at grade 11 vocational, but less at other grades, notably so at grade 4, than the EU mean. Students are in schools that employ full time ICT coordinators at around the EU mean at grade 4, but considerably below the EU average at all other all grades, with none at 11 vocational. The ICT coordinators provide pedagogical and well as ICT support above to the EU level at grade 11 vocational, but below the level at all other grades.

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

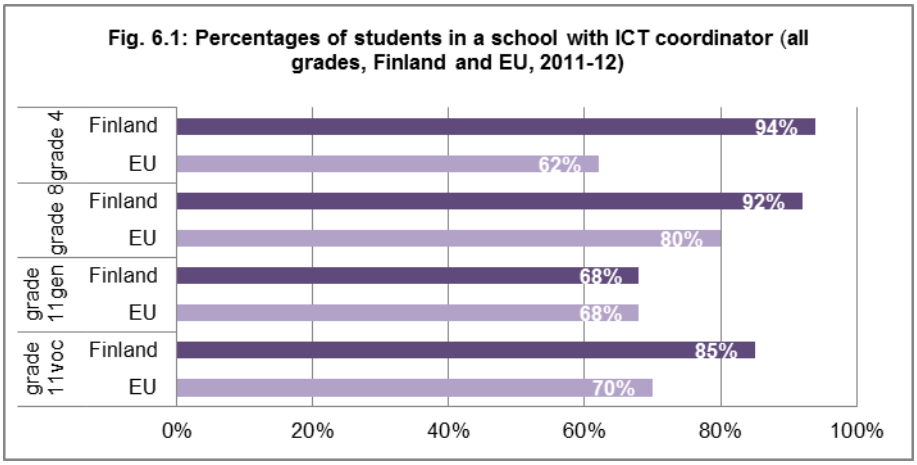
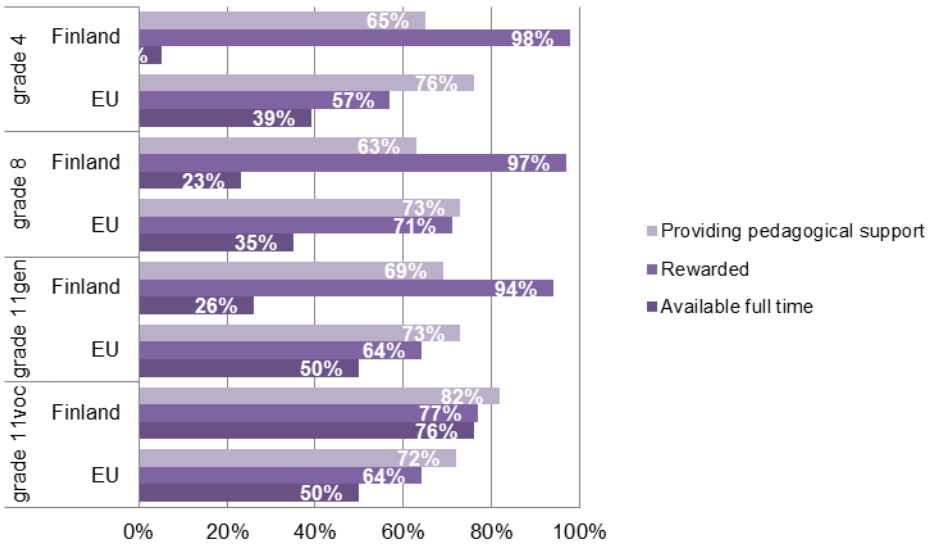


Fig. 6.2: Percentages of students in a school with ICT coordinator available full time, and/or rewarded and/or providing pedagogical support (all grades, Finland and EU, 2011-12)



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

INCENTIVES

In Finland most students are in schools where there is some form of incentive or reward for using ICT, above the EU average at all grades in training hours and equipment. There are few financial incentives at all grades, except at grade 11 general, and also notable reduction in hours at grade 11 vocational.

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

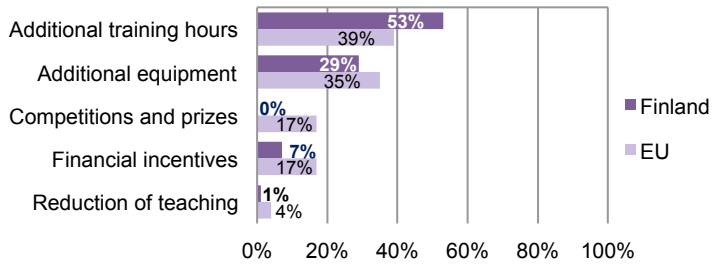


Fig. 6.3b: grade 8

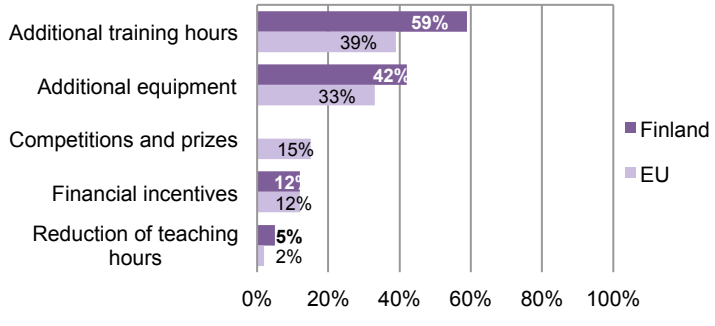


Fig. 6.3c: grade 11 gen.

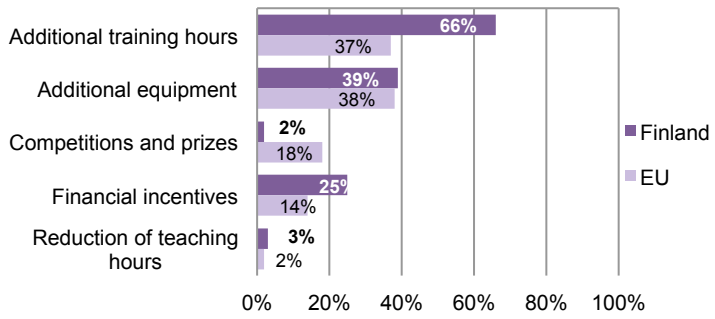
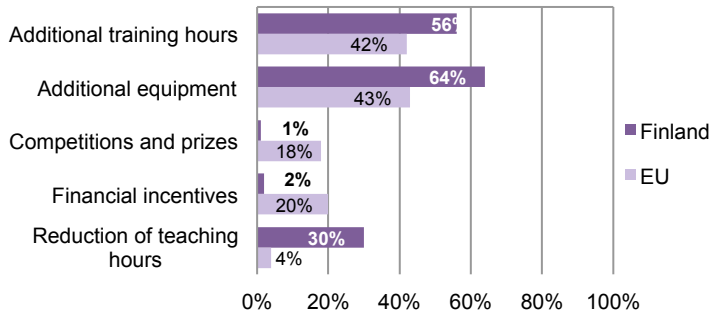


Fig. 6.3d: grade 11 voc.



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

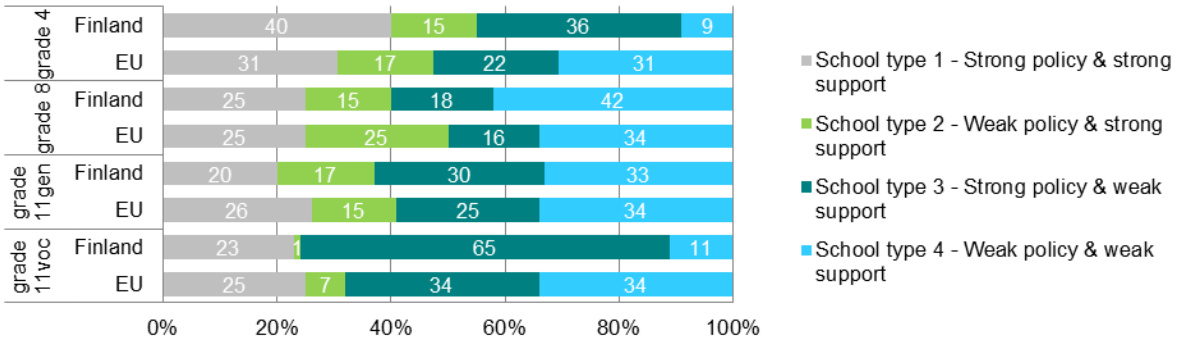
7: CLUSTERS

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.).

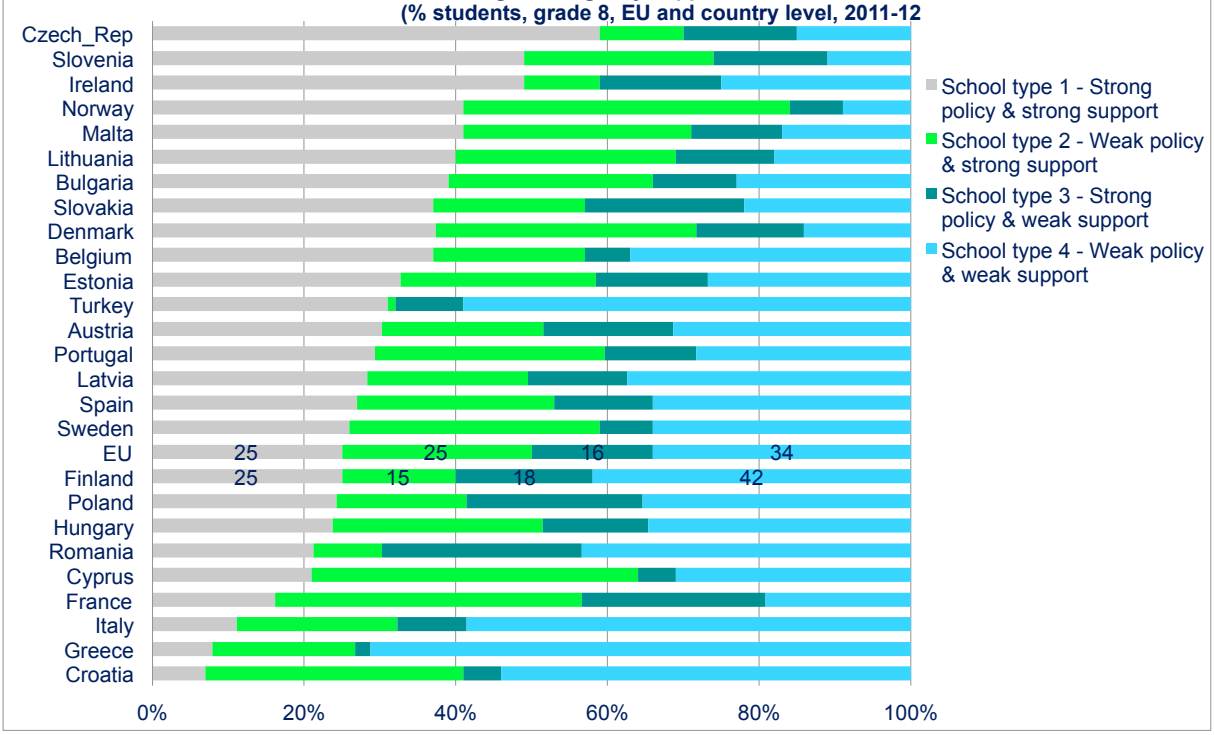
In Finland, only at grade 4 is the percentage of students in schools with strong support for ICT above the EU mean. Weak policy and weak support are particularly noticeable at grade 8.

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



Finland ranks among the bottom five at grade 8 having schools with strong support (type 1 and 2). However at grade 4 (main report, fig. 8.1), Finland is at the other end of the scale, i.e. among the leading group of countries, in terms of schools with strong support (almost 60% of students are in type 1 or 2 schools). At grade 11 Finland ranks in the lower third of countries.

Fig. 7.1: Digitally supportive schools (% students, grade 8, EU and country level, 2011-12

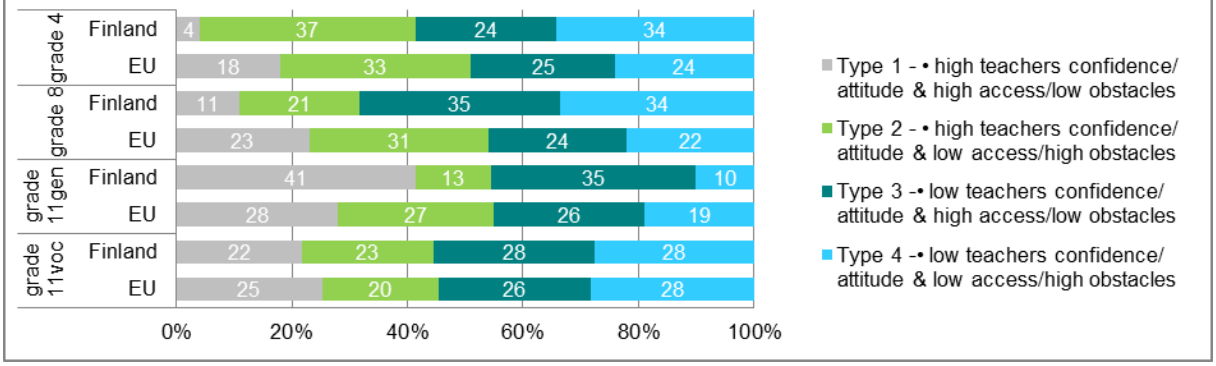


DIGITALLY CONFIDENT AND SUPPORTIVE TEACHERS

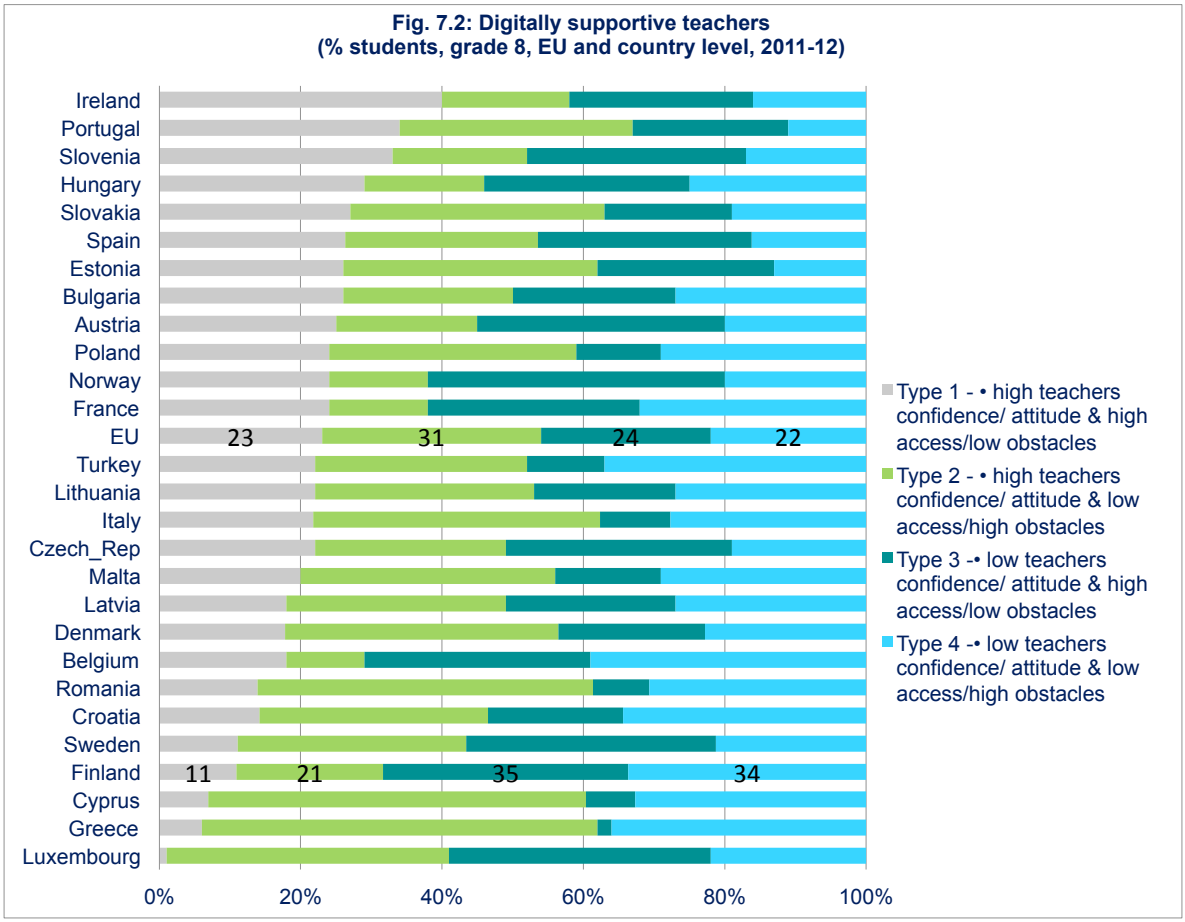
The concept of the 'digitally supportive teacher' also emerged from a close analysis of the data. Such teachers have high confidence in and a positive attitude towards ICT and high access to ICT and low obstacles to using it. Teachers having high confidence in and a positive attitude towards ICT even seem to be able to overcome low access to ICT and high obstacles.

Percentages of students taught by *digitally supportive teachers* in Finland are below other countries except at grade 11 general, and particularly so at grade 4.

Fig. B: Percentages of students by type of T&L conditions (teachers' confidence/attitude & access/obstacles) (all grades, Finland and EU, 2011-12)

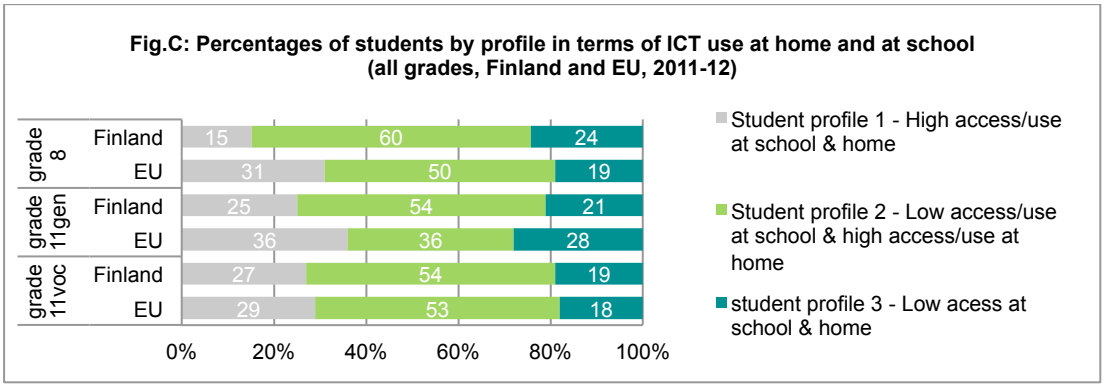


A low percentage of students at grade 8 compared to other countries is in schools with type 1 teachers (fig. 7.2), ranking Finland in the lowest group of countries in this respect, as is the case at grade 4. However at grade 11 general Finland ranks among the leading group of countries in terms of digitally supportive teachers, and is in the middle group of countries at grade 11 vocational (main report, fig. 8.3).



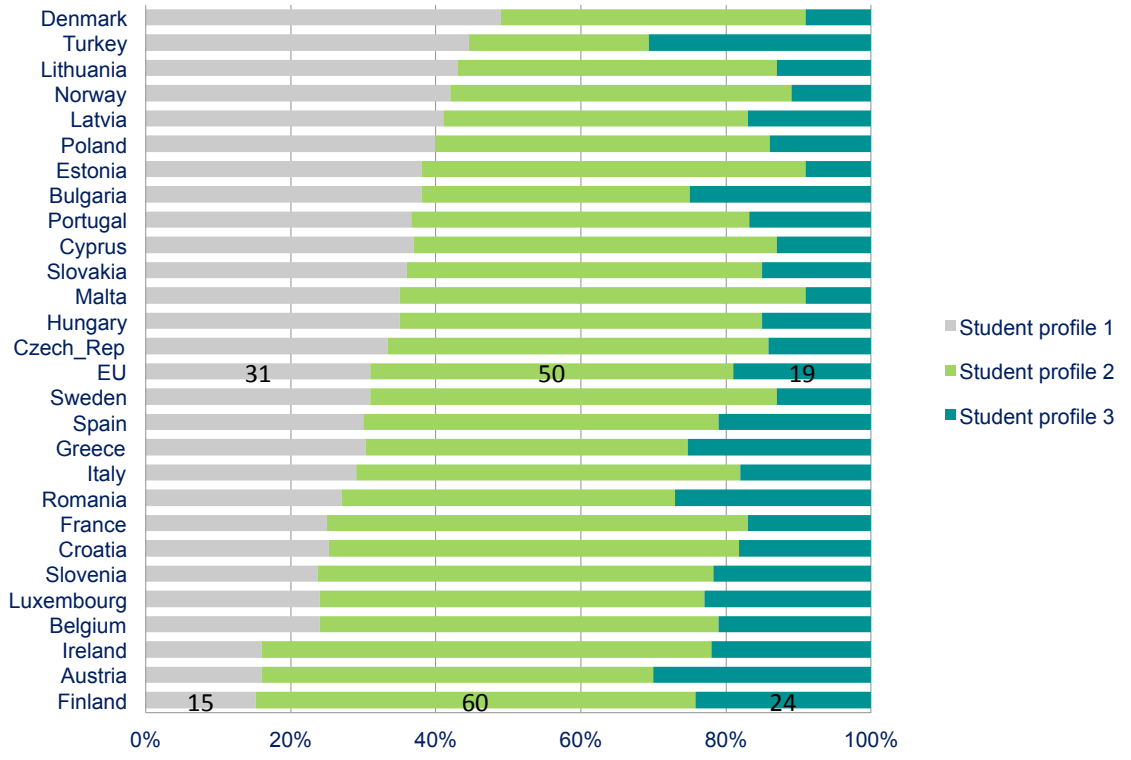
THE DIGITALLY SUPPORTIVE STUDENT

A *digitally supportive student* being defined as having high ICT access and use at school and at home, the percentages of such students in Finland are below EU means at the grades surveyed.



On this measure, percentages of type 1 grade 8 students are the lowest in Europe (fig. 7.3), and at grade 11, although with higher percentages, Finland is among the bottom group of countries of type one students (main report, fig. 8.5).

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

In Finland, percentages of students in type 1 schools are among the highest in Europe, with only small percentages of students *not* in such schools.

Fig. D: Digitally equipped schools
(in % students, Finland and EU, 2011-12)

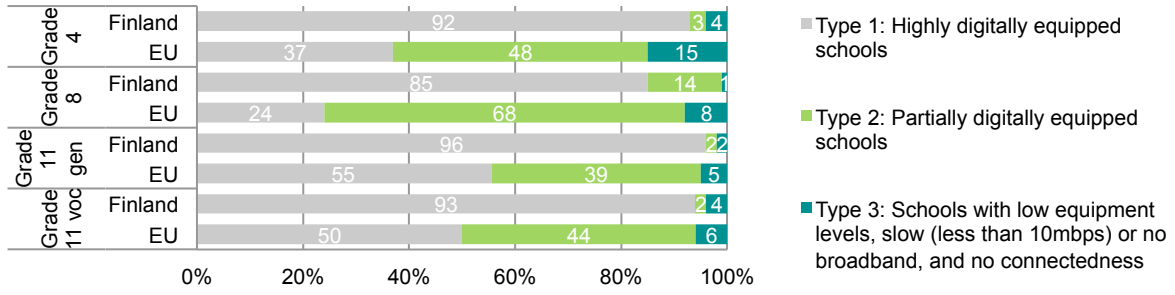
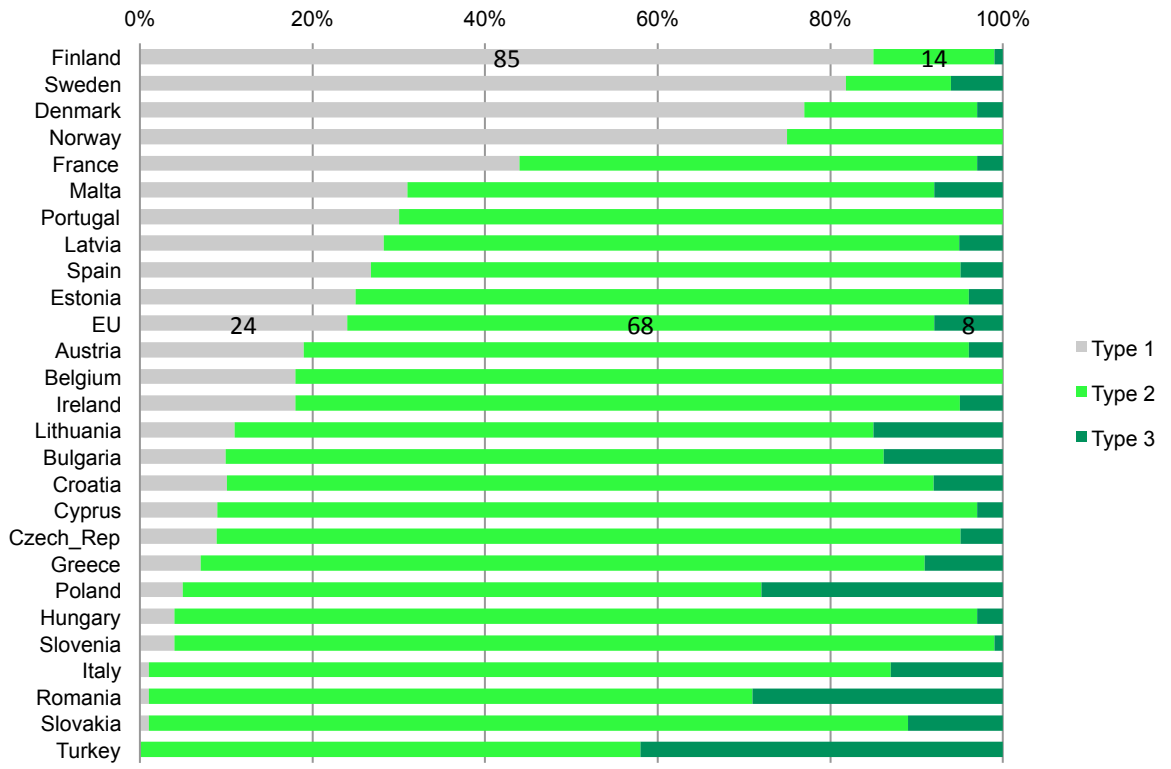


Fig. 7.4 shows how Finland compares against other countries at grade 8 on this measure, ranking first in the leading group of countries. Very few students are in type 3 schools compared to other countries. At other grades (main report, fig. 1.13) Finland ranks fourth for type 1 schools, having some of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

Fig. 7.4: Digitally equipped schools
(% students, grade 8, country and EU level, 2011-12)



CONCLUSION

Students in Finland enjoy among the highest levels in Europe of ICT infrastructure provision, high speed broadband connectivity and 'connectedness', yet frequency of ICT use by teachers is above EU means only at grade 11, and by students consistently lower at all grades. Levels of teacher confidence in operational use of ICT are, curiously, below EU means but above when considering their confidence in the use of social media. On the other hand students' confidence in ICT is around the EU mean (except at grade 11 vocational where it is lower). Support measures for teachers in terms of training and an ICT coordinator appear uneven across grades.

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.

Fig. 2.1
Computers per 100 students

COUNTRY	Grade4	SE1	Grade8	SE2	Grade11gen	SE3	Grade11voc	SE4
Finland	16.7	(0.9)	19.9	(1.3)	23.9	(0.9)	54.7	(12.0)
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	Finland	0.0%	(0.0)	4.5%	(2.2)	7.6%	(2.6)
	EU	8.0%	(1.3)	16.5%	(2.3)	21.4%	(2.4)
2. Grade8	Finland	1.2%	(0.9)	1.6%	(1.2)	7.7%	(4.0)
	EU	5.0%	(0.8)	9.6%	(1.3)	19.1%	(2.3)
3. Grade11gen	Finland	1.2%	(0.3)	0.0%	(0.0)	2.8%	(1.6)
	EU	3.7%	(1.3)	6.2%	(0.8)	18.0%	(2.8)
4. Grade11voc	Finland	4.2%	(3.6)	0.8%	(0.3)	7.8%	(4.8)
	EU	6.5%	(1.8)	6.2%	(1.3)	15.2%	(3.0)

From5to10	SE4	From10to30	SE5	From30to100	SE6	MoreThan100	SE7
14.6%	(4.9)	18.4%	(5.9)	35.2%	(10.0)	19.6%	(9.6)
22.1%	(2.2)	19.5%	(2.2)	8.6%	(1.4)	4.0%	(1.3)
4.8%	(1.7)	24.4%	(7.2)	42.2%	(8.4)	18.2%	(5.6)
27.7%	(2.4)	24.8%	(2.3)	8.6%	(1.6)	5.2%	(1.2)
17.0%	(9.6)	10.1%	(3.3)	31.6%	(9.6)	37.3%	(10.1)
23.2%	(3.0)	25.4%	(3.9)	13.3%	(2.6)	10.3%	(8.0)
9.0%	(6.2)	11.9%	(6.3)	17.1%	(8.1)	49.2%	(18.3)
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	Finland	93.5%	(3.7)	76.4%	(6.1)	4.6%	(3.6)
	EU	69.7%	(3.6)	26.8%	(2.0)	15.9%	(2.2)
2. Grade8	Finland	98.8%	(0.7)	88.9%	(3.0)	1.2%	(0.7)
	EU	86.0%	(1.6)	61.4%	(3.0)	8.4%	(1.2)

Level	COUNTRY	SchWebsite	SE1	VLE	SE2	NoConnect	SE3
3. Grade11gen	Finland	97.7%	(1.5)	95.2%	(2.1)	1.7%	(1.3)
	EU	91.7%	(3.1)	61.0%	(7.9)	7.0%	(2.9)
4. Grade11voc	Finland	95.5%	(4.7)	90.7%	(6.2)	4.5%	(1.5)
	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	Finland	0.0%	(0.0)	2.3%	(1.4)	17.3%	(8.9)	24.9%	(8.7)	21.2%	(5.7)
	EU	3.0%	(0.4)	10.0%	(2.4)	13.9%	(1.4)	18.0%	(1.8)	19.1%	(2.1)
2. Grade8	Finland	7.4%	(3.4)	8.6%	(2.5)	11.8%	(3.0)	21.7%	(4.6)	19.7%	(3.0)
	EU	7.4%	(1.0)	6.8%	(0.8)	14.7%	(0.9)	20.7%	(1.2)	18.9%	(1.4)
3. Grade11gen	Finland	9.9%	(3.4)	11.6%	(3.5)	20.1%	(8.8)	11.7%	(2.8)	25.6%	(3.6)
	EU	7.0%	(1.0)	8.1%	(1.4)	14.9%	(1.4)	22.9%	(3.8)	17.1%	(1.8)
4. Grade11voc	Finland	28.3%	(15.9)	7.5%	(3.0)	14.1%	(4.9)	20.3%	(5.9)	17.5%	(10.8)
	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
28.0%	(7.1)	5.3%	(2.5)	1.0%	(0.8)
20.7%	(2.7)	8.7%	(1.4)	6.7%	(1.4)
16.2%	(2.8)	9.5%	(3.1)	5.1%	(2.3)
14.4%	(1.0)	11.0%	(1.0)	6.1%	(0.8)
14.8%	(4.3)	2.1%	(0.7)	4.1%	(2.8)
14.0%	(1.5)	10.3%	(1.4)	5.7%	(0.9)
7.6%	(3.3)	1.9%	(1.2)	2.9%	(2.0)
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
Finland	19.8%	(8.9)	29.3%	(4.7)	43.4%	(6.9)	51.4%	(15.3)
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	Finland	31.0	(1.8)	3.9	(0.6)	26.5	(2.4)
	EU	28.0	(0.8)	11.2	(0.7)	53.3	(1.1)
2. Grade11gen	Finland	29.3	(3.2)	4.7	(1.0)	24.5	(3.1)
	EU	34.6	(1.3)	10.7	(1.1)	50.5	(1.5)
3. Grade11voc	Finland	45.0	(3.7)	18.3	(6.6)	55.2	(8.9)
	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	Finland	2.68	(0.20)	2.77	(0.16)
	EU	2.41	(0.03)	2.98	(0.02)
2. Grade8	Finland	2.59	(0.08)	2.82	(0.05)
	EU	2.37	(0.04)	3.00	(0.03)
3. Grade11gen	Finland	2.63	(0.12)	2.95	(0.08)
	EU	2.38	(0.07)	3.01	(0.03)
4. Grade11voc	Finland	2.77	(0.33)	3.14	(0.18)
	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	Finland	2.64	(0.03)	2.62	(0.03)	2.75	(0.04)	3.10	(0.04)
	EU	2.41	(0.02)	2.63	(0.02)	2.58	(0.02)	2.98	(0.02)
2. Grade11gen	Finland	2.97	(0.05)	2.88	(0.02)	3.15	(0.05)	3.33	(0.06)
	EU	2.78	(0.02)	2.88	(0.01)	2.93	(0.03)	3.16	(0.02)
3. Grade11voc	Finland	2.49	(0.22)	2.61	(0.16)	2.71	(0.19)	2.95	(0.17)
	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	Finland	7.5%	(2.4)	47.9%	(9.0)	10.1%	(3.3)
	EU	47.5%	(4.2)	19.4%	(3.0)	11.9%	(2.4)
2. Grade8	Finland	12.6%	(2.6)	31.0%	(4.4)	11.1%	(2.5)
	EU	60.7%	(1.6)	15.6%	(1.0)	5.2%	(0.5)
3. Grade11gen	Finland	28.5%	(8.2)	42.3%	(7.2)	3.4%	(1.1)
	EU	44.7%	(5.2)	23.1%	(3.4)	11.0%	(1.6)
4. Grade11voc	Finland	45.8%	(12.0)	27.4%	(6.7)	6.5%	(3.3)
	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	Finland	14.5%	(3.6)	58.5%	(8.9)	35.9%	(9.3)
	EU	25.4%	(2.5)	40.3%	(3.2)	70.0%	(2.8)
2. Grade8	Finland	20.2%	(4.0)	44.9%	(3.6)	34.7%	(4.4)
	EU	30.8%	(1.6)	50.5%	(1.7)	74.2%	(1.3)

Level	COUNTRY	OnlineComm	SE1	ICTtraining	SE2	PersonalLearning	SE3
3. Grade11gen	Finland	34.7%	(4.6)	61.0%	(6.2)	47.8%	(8.4)
	EU	28.0%	(2.4)	43.5%	(2.2)	71.7%	(2.2)
4. Grade11voc	Finland	39.1%	(15.2)	62.9%	(11.6)	51.8%	(14.6)
	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
Finland	93.9%	(2.8)	91.8%	(4.7)	67.7%	(11.7)	85.1%	(7.8)
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	Finland	5.0%	(4.5)	97.9%	(1.3)	64.8%	(8.5)
	EU	39.3%	(3.0)	56.5%	(3.0)	75.9%	(2.3)
2. Grade8	Finland	23.1%	(9.3)	97.2%	(1.6)	62.7%	(8.6)
	EU	34.8%	(2.9)	70.6%	(2.4)	72.5%	(2.5)
3. Grade11gen	Finland	25.7%	(13.3)	93.8%	(2.9)	69.3%	(7.0)
	EU	49.6%	(6.9)	63.6%	(7.7)	73.4%	(4.2)
4. Grade11voc	Finland	75.6%	(12.1)	76.9%	(12.7)	81.8%	(10.8)
	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	Finland	52.8%	(9.3)	29.2%	(7.6)	0.0%	(0.0)	6.8%	(2.3)	0.6%	(0.1)	1.3%	(0.9)
	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	Finland	58.7%	(8.1)	41.6%	(8.2)	0.0%	(0.0)	12.5%	(5.6)	5.3%	(4.9)	1.4%	(0.9)
	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	Finland	66.0%	(9.7)	38.7%	(9.7)	1.5%	(1.3)	24.7%	(9.5)	3.0%	(1.8)	8.5%	(5.8)
	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	Finland	56.4%	(18.4)	64.2%	(13.3)	0.7%	(0.3)	2.4%	(0.8)	30.2%	(21.6)	5.7%	(3.9)
	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	Finland	40	(9.16)	15	(9.40)	36	(8.05)	9	(3.40)
	EU	31	(2.70)	17	(3.17)	22	(2.53)	31	(2.98)
2. Grade8	Finland	25	(7.25)	15	(6.44)	18	(3.98)	42	(8.20)
	EU	25	(1.91)	25	(2.20)	16	(1.83)	34	(2.15)

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3	Type4	SE4
3. Grade11gen	Finland	20	(6.18)	17	(9.78)	30	(9.45)	33	(9.50)
	EU	26	(2.28)	15	(8.69)	25	(3.74)	34	(5.30)
4. Grade11voc	Finland	23	(9.29)	1	(0.34)	65	(12.77)	11	(6.46)
	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	Finland	4	(1.71)	37	(10.24)	24	(5.99)	34	(7.66)
	EU	18	(2.02)	33	(2.95)	25	(2.33)	24	(2.64)
2. Grade8	Finland	11	(2.81)	21	(3.60)	35	(5.32)	34	(5.61)
	EU	23	(1.43)	31	(1.27)	24	(1.52)	22	(1.17)
3. Grade11gen	Finland	41	(8.03)	13	(3.25)	35	(7.14)	10	(3.19)
	EU	28	(2.41)	27	(2.68)	26	(1.65)	19	(1.67)
4. Grade11voc	Finland	22	(6.93)	23	(16.57)	28	(6.63)	28	(10.08)
	EU	25	(1.49)	20	(2.69)	26	(2.83)	28	(1.67)

Fig. C

Digitally students

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3
1. Grade8	Finland	15	(1.54)	60	(1.50)	24	(1.42)
	EU	31	(1.00)	50	(0.85)	19	(0.67)
2. Grade11gen	Finland	25	(1.68)	54	(1.80)	21	(1.31)
	EU	36	(1.18)	36	(1.00)	28	(1.47)
3. Grade11voc	Finland	27	(7.72)	54	(6.85)	19	(4.70)
	EU	29	(1.60)	53	(1.03)	18	(1.37)

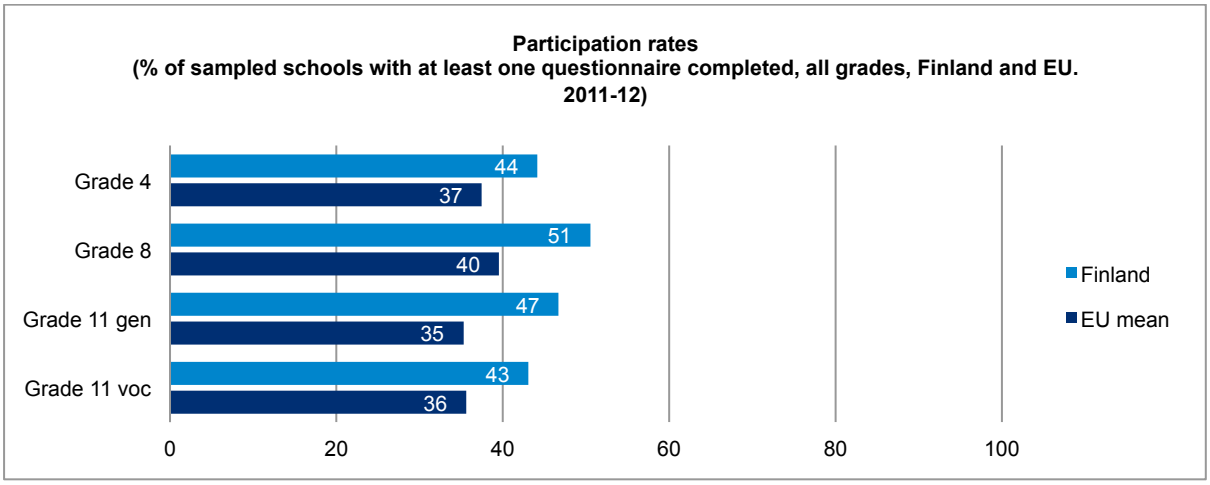
Fig. D

Digitally equipped Schools

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3
1. Grade4	Finland	92	(3.86)	3	(1.62)	4	(3.50)
	EU	37	(4.43)	48	(4.15)	15	(2.12)
2. Grade8	Finland	14	(5.01)	85	(5.06)	1	(0.69)
	EU	68	(2.87)	24	(3.31)	8	(1.16)
3. Grade11gen	Finland	96	(1.91)	2	(1.33)	2	(1.29)
	EU	55	(12.27)	39	(10.34)	5	(2.06)
4. Grade11voc	Finland	4	(1.48)	93	(5.47)	2	(0.81)
	EU	6	(1.88)	50	(13.83)	44	(12.07)

NOTES

Participation. For the Survey of Schools: ICT and Education, 300 schools in Finland 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. 1.1 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 Finland participation levels are above the EU mean at all grades.



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.