



University of Liege  
Psychology and  
Education

## SURVEY OF SCHOOLS: ICT IN EDUCATION

### COUNTRY PROFILE: DENMARK

November 2012

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## 1. INTRODUCTION

### ICT IN THE DANISH SCHOOL EDUCATION SYSTEM

In Denmark the ministry of Education, Youth and Science (MEYS) has central management of education and directly fund state schools. Municipalities form part of the national structure and are responsible inter alia for the compulsory education of pupils up to the age of 16, and are granted substantial financial autonomy<sup>1</sup>. Schools have some flexibility in curriculum delivery which is decided by the school pedagogical council.

According to Eurydice's **Key Data on Learning and Innovation through ICT at school in Europe**<sup>2</sup>, in Denmark there are national strategies in place for training in the use of ICT in e-learning, digital media literacy, and training and research into e-skills development. There are central steering documents for all ICT learning objectives<sup>3</sup> at primary and secondary education level, except for knowledge of computer hardware and electronics, and developing programming skills. In both primary and secondary schools ICT is taught as a general tool for other subjects/or as a tool for specific tasks in other subjects. Recommendations or suggestions and support are provided for all ICT hardware<sup>4</sup> except e-book readers and for all ICT software. According to official steering documents, students and teachers at all levels are expected to use ICT in all subjects in class and for complementary activities. There are central recommendations on the use of ICT in student assessment in both primary and secondary level education for on-screen testing and interactive testing. Public-private partnerships for promoting the use of ICT are encouraged.

### THE SURVEY OF SCHOOLS: ICT IN EDUCATION

In 2011, the European Commission Directorate General Communications Networks, Content and Technology<sup>5</sup> 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 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.

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<sup>1</sup> <https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php?title=Home>

<sup>2</sup> [http://eacea.ec.europa.eu/education/eurydice/documents/key\\_data\\_series/129EN.pdf](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

<sup>3</sup> .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

<sup>4</sup> 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

<sup>5</sup> [www.ec.europa.eu/dgs/connect/](http://www.ec.europa.eu/dgs/connect/)

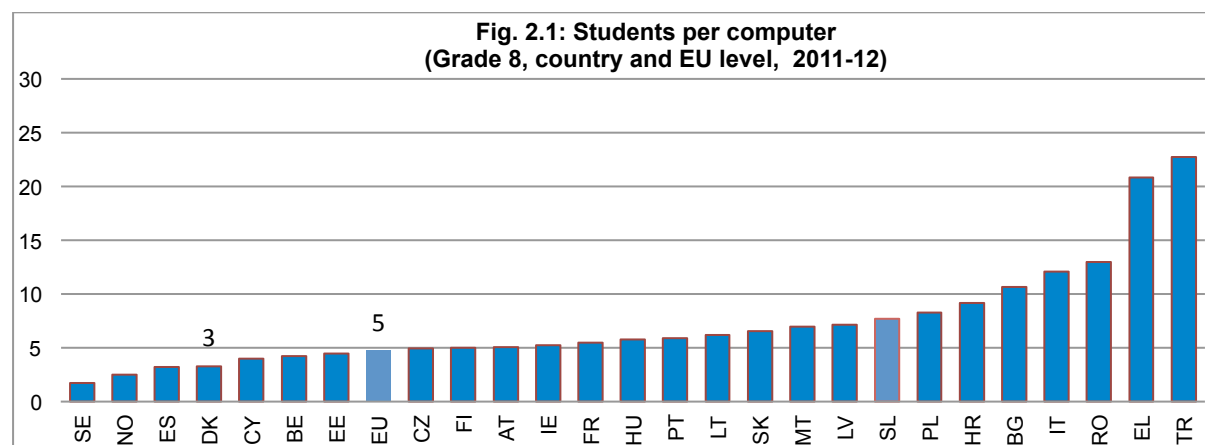
This country profile should be read in conjunction with the Report of the Survey of Schools: ICT in Education (the 'main report'). The profile presents key indicators concerning access, use and attitudes to Information and Communication Technology in primary and secondary schools derived from responses 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](mailto:essie-eu@eun.org) and information about the survey is at <http://essie.eun.org>.

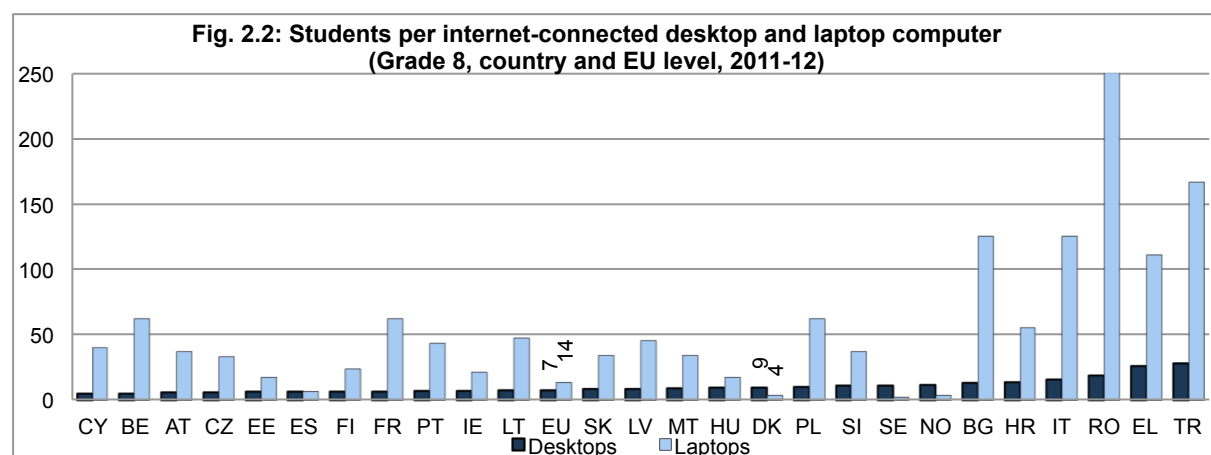
## 2. ICT INFRASTRUCTURE

### AVAILABILITY OF COMPUTERS FOR EDUCATIONAL PURPOSES

In Denmark there are around half the number of students to computers (desktop, laptop, tablet, whether or not connected to the internet) compared to the EU average at all grades except grade 11 vocational where there are twice the EU average number of students per computer (fig. 1.1 main report).



As for computers connected to the internet in schools, in Denmark there are considerably more laptop computers at most grades compared to the EU average, with a ratio of 4 students per laptop at Grade 8 schools (fig. 2.2). At all grades Denmark ranks in the top three countries, except at grade 11 vocational where, although in the leading group of countries, it ranks lower (main report fig. 1.2)



Students in Denmark are more likely than others countries at all grades to find their computers located in the library or other locations, most notable at grade 11 general (main report, fig. 1.3). Denmark ranks at all grades in the lower group of countries in which computers are located in computer labs except at grade 11 vocational where they are in the middle group of countries. Higher percentages of students at all levels are in schools where over 90% of computers are operational (main report, fig. 1.4), ranking Denmark among the leading group of countries.

## BROADBAND

In Denmark there no students are in schools without broadband at grade 11, but percentages of such students are above the EU mean at grade 4 and 8. At all grades the percentages of students in schools with broadband speeds faster than 10mbps is considerably higher than the EU mean, and is 100% at grade 11 vocational. A much higher percentage of students than the EU average is in schools with more than 100 mbps at all grades, and considerably more at 11 general.

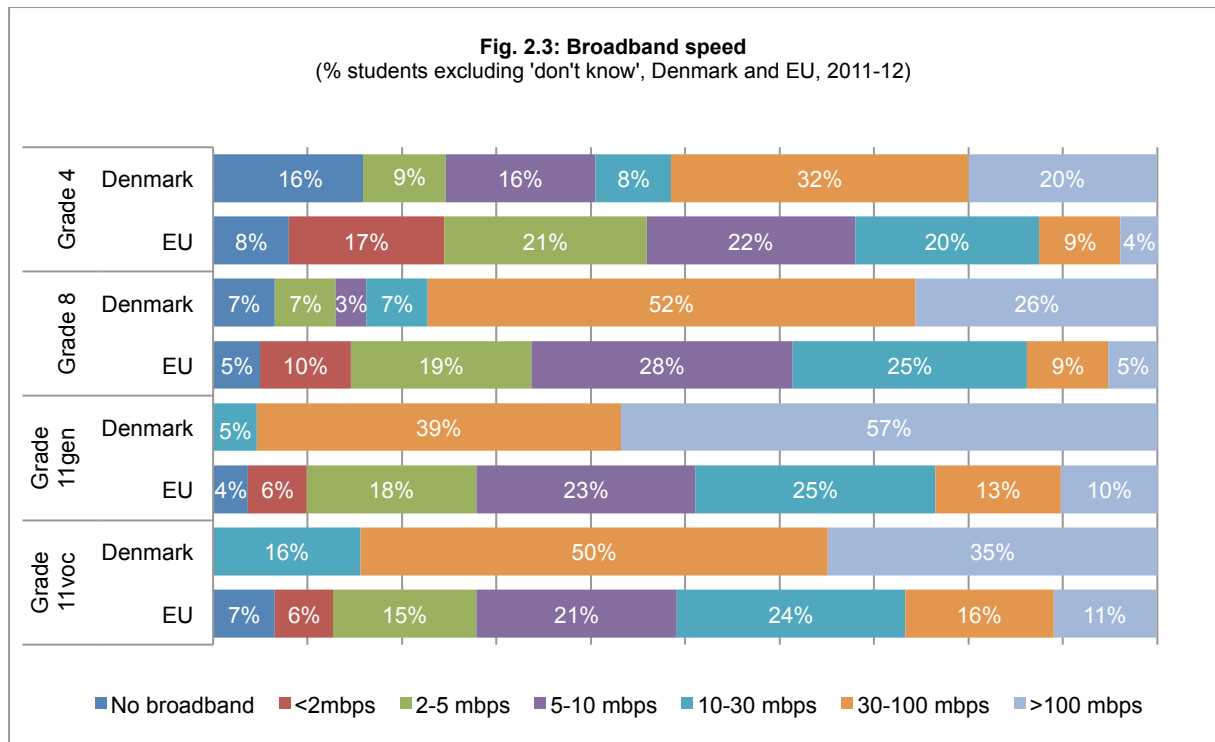
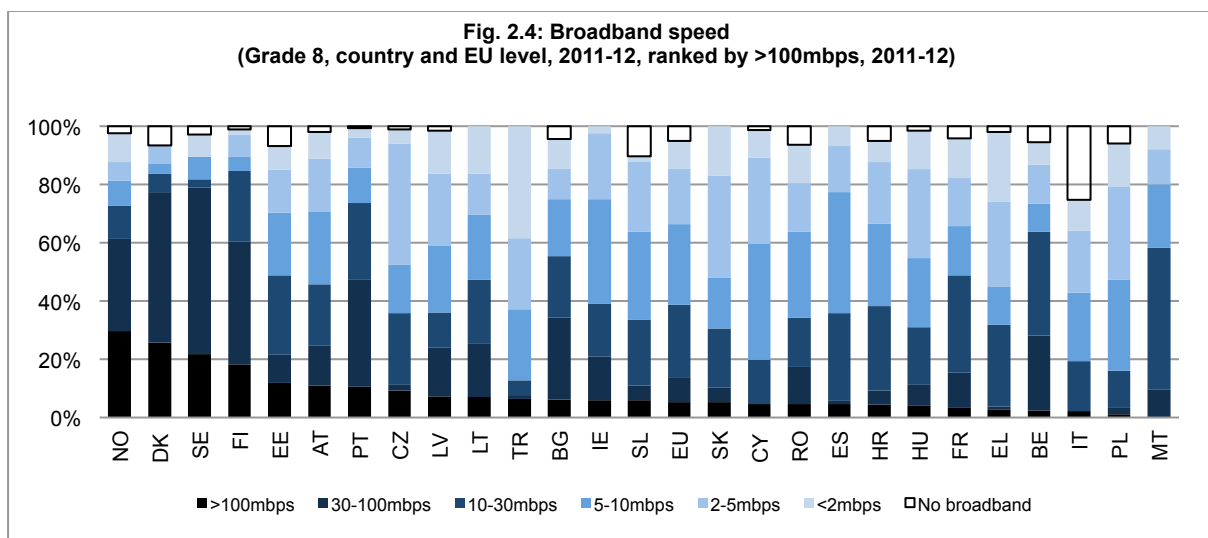
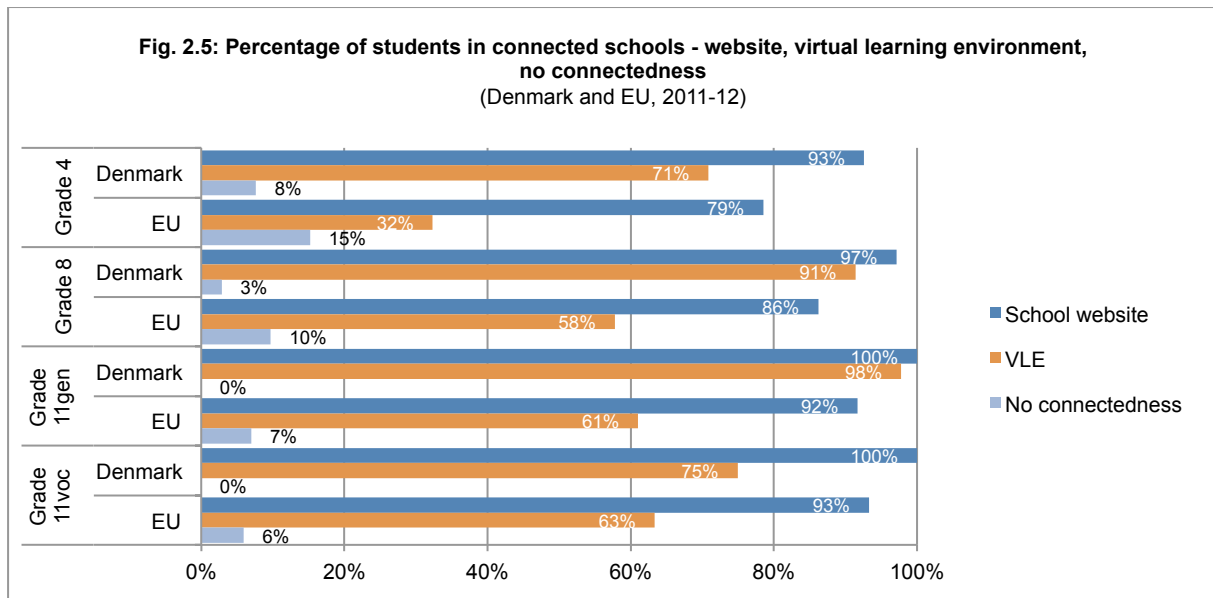


Fig. 2.4 shows how Denmark compares to other countries at grade 8: second highest in terms of the percentage of students in schools with high speed broadband and in the top three at other grades (main report, fig. 1.8).

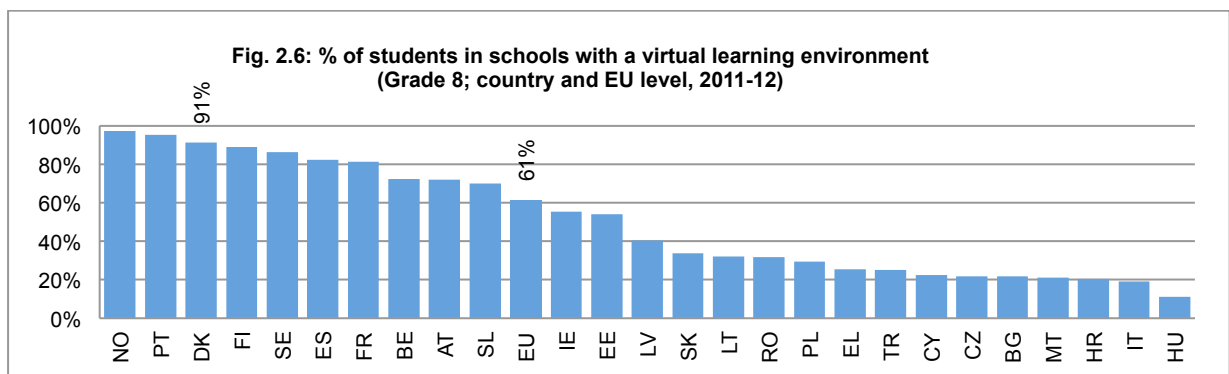


## 'CONNECTEDNESS'

In Denmark, the percentage of students in schools with a website is higher than the EU mean at all grades with 100% at grade 11. The percentage of students in schools with a virtual learning environment is considerably above the EU mean at all grades, notably at grade 4 and grade 11 general where nearly all students are in schools with a virtual learning environment. 'Unconnected' schools are rare at all grades, none at grade 11, well below the EU average.



Denmark is in the leading group of countries regards virtual learning environments at grade 8, as seen in fig. 2.6, in the top three countries at this and other grades, except 11 vocational where it is ninth (main report, fig. 1.10).



In Denmark of the schools with virtual learning environments, almost all offer external access, placing Denmark in the leading group of countries at all grades (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 Denmark use of ICT by teachers at all grades is well above the EU average. There are more teachers using ICT in more than 25% of lessons, well above the EU average, at all grades, and most notably at grade 11 general. The most intense use is at grade 11 general where more than one in three use ICT with their students in more than 75% of lessons.

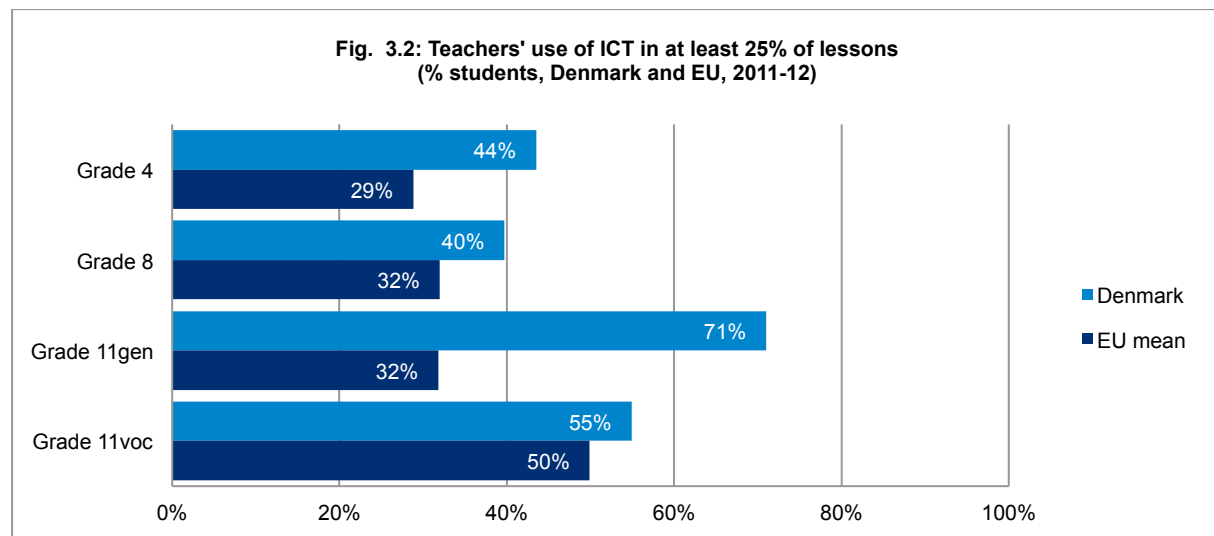
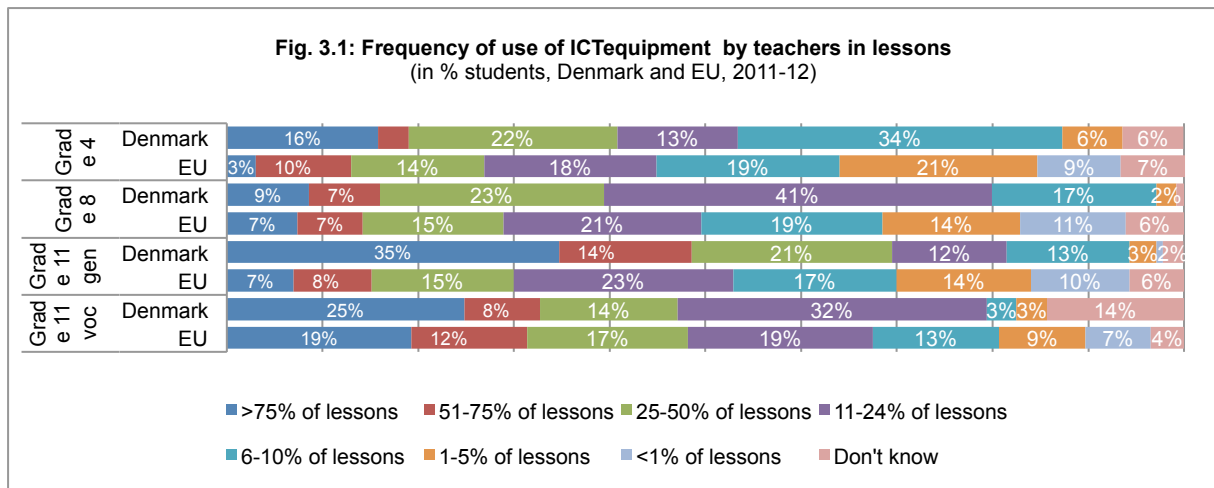
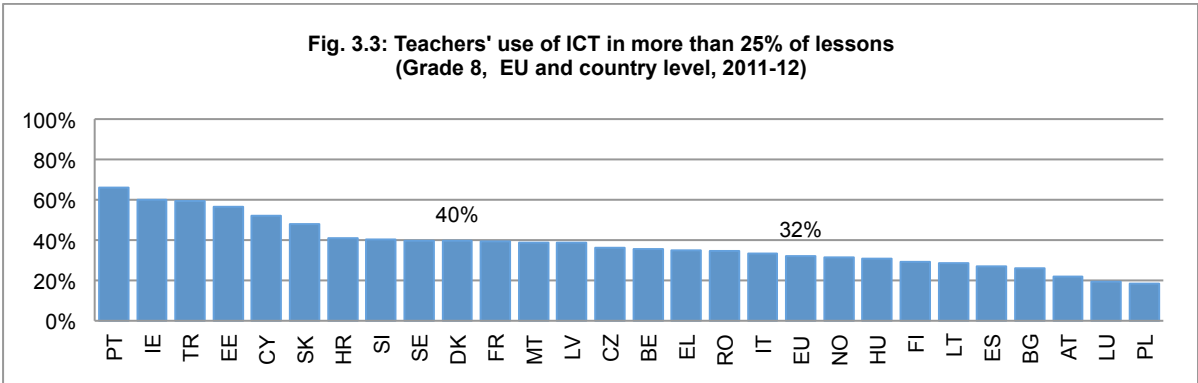


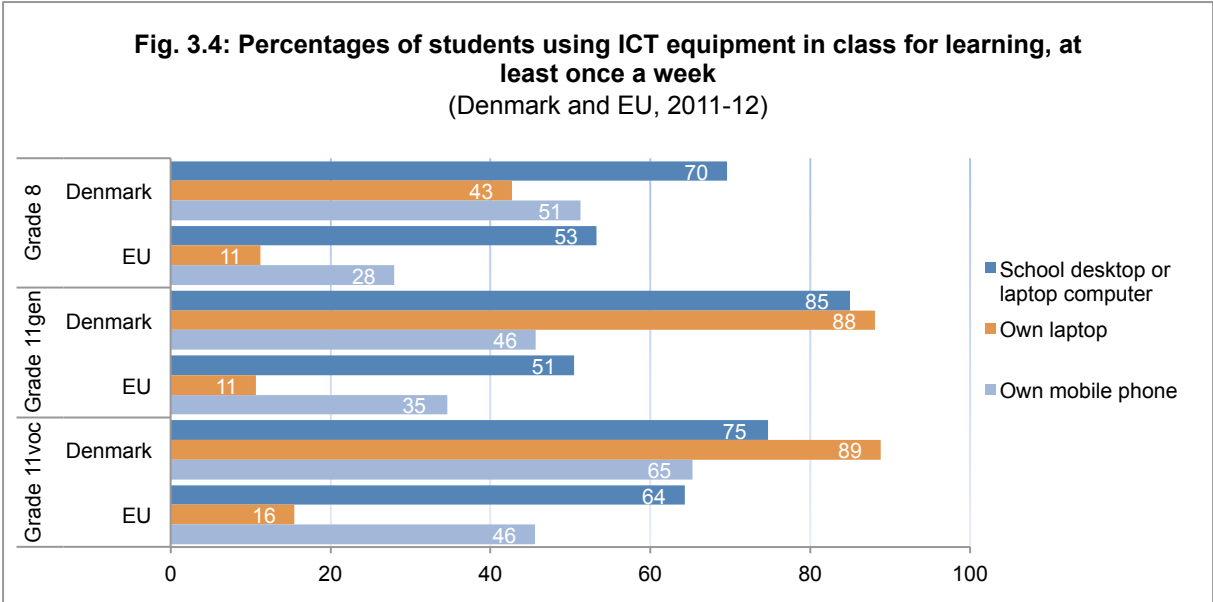
Fig 3.3 shows Denmark ranks tenth at grade 8 concerning percentages of students in schools where teachers use ICT in more than 25% of lessons, and is also in the leading group of countries at grade 4. At grade 11 general it ranks first, but in the middle group of countries at grade 11 vocational (main report, fig. 2.2).



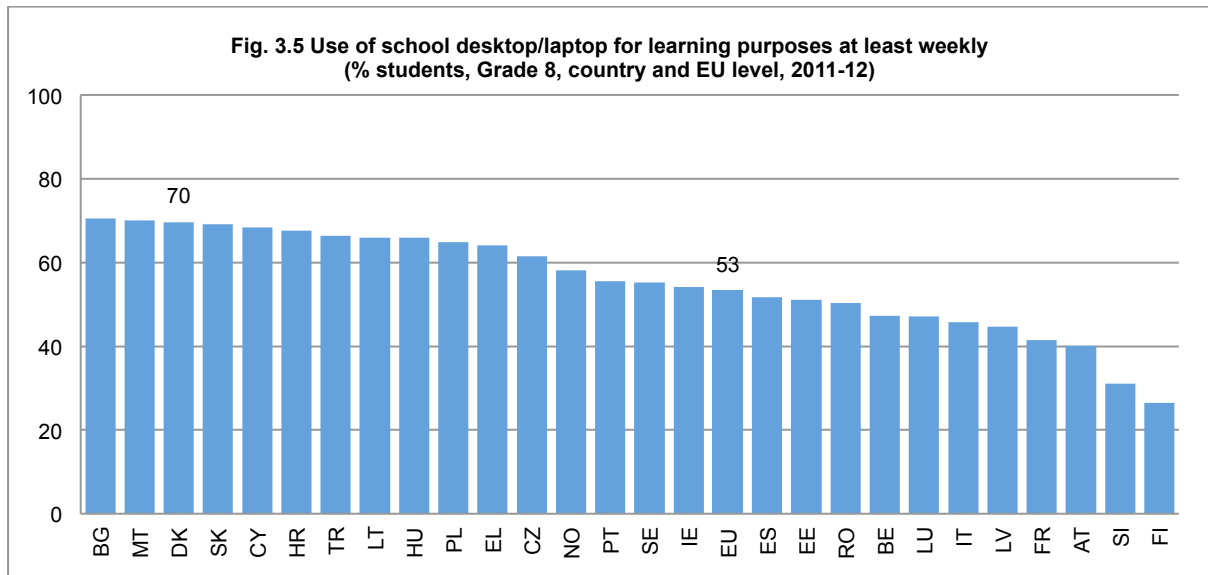
As regards teachers' use of ICT (Section 3 of the main report), Denmark is in the leading group of countries where teachers have been using ICT in lessons for more than six years (main report, fig 3.2). In terms of student-centred learning however Denmark is in the lowest group of countries at all grades (main report, fig. 3.5).

**STUDENTS' ICT USE**

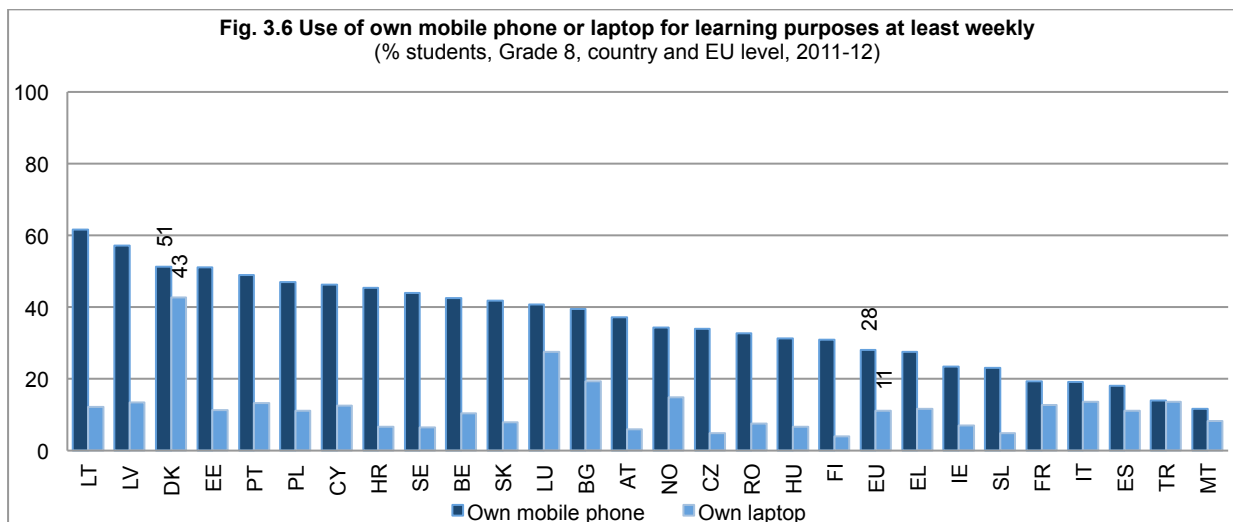
Students at grade 8 and 11 were also asked how frequently they used various items of ICT equipment in their lessons for learning purposes. The chart below shows their reported intensity of use of a school computer, and their own laptop or mobile phone. In Denmark student use of computers in class is higher than the EU mean. Use of their own laptop is considerably higher than the EU mean, approaching 90% at grade 11. Mobile phone usage is higher than the EU mean at all grades.



At grade 8 students' reported use of computers is ranked third, over 70% saying they use them at least once a week (fig. 3.5) and second and fourth at grades 11 general and vocational respectively (main report, fig. 2.5).



Compared to other countries at grade 8 (fig.3.6), students in Denmark are relatively heavy users of their own mobile phone and are by far the leading country in terms of students' use of their own laptop in school (nearly four times the EU average). At grade 11 vocational Denmark ranks second in terms of students' own mobile phone use, and in the middle group of countries at grade 11 general. In terms of the use of their own laptops at grade 11, with over 88% of students using them in schools, Denmark is in the leading country on this measure (main report, fig. 2.5).



Students report using interactive whiteboards much more frequently than the EU average at all grades, in the leading group of countries at all grades (main report, fig. 2.6).

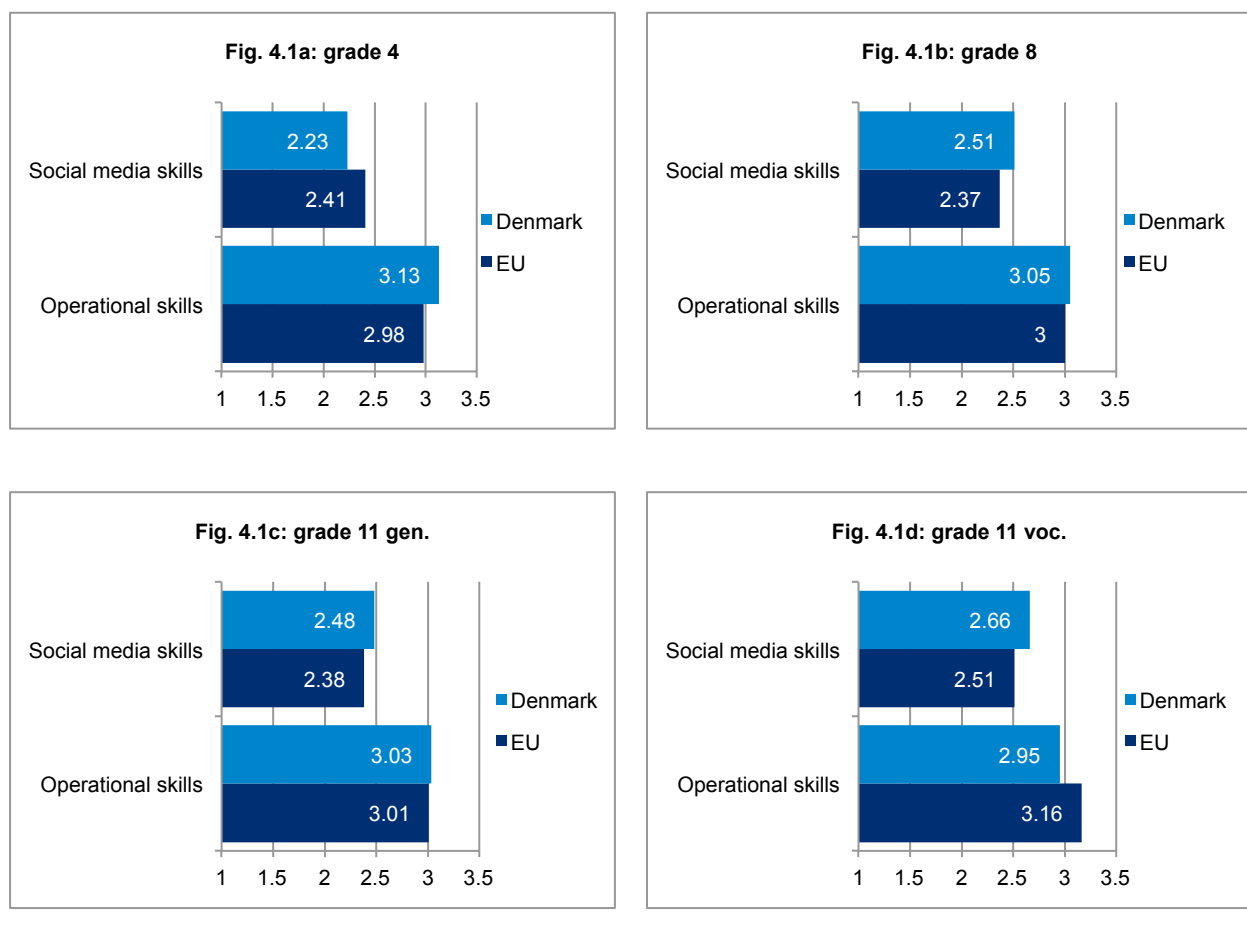
## 4. DIGITAL CONFIDENCE

### TEACHERS

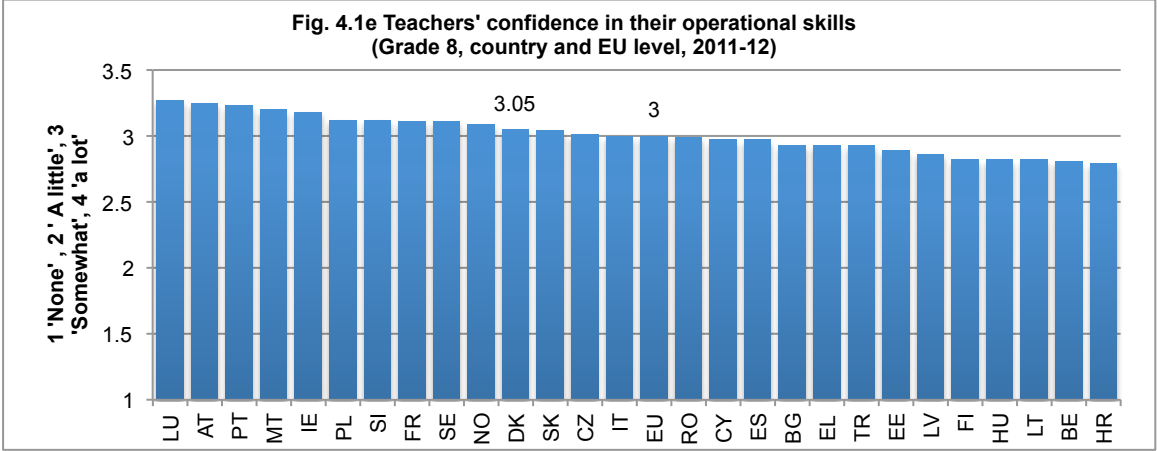
The mean score of students in the Denmark being taught by teachers declaring confidence in their operational skills close to or above 3 in all grades, much in line with the EU mean, and this is also the case in social media skills at all grades, except grade 4 where it is lower.

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

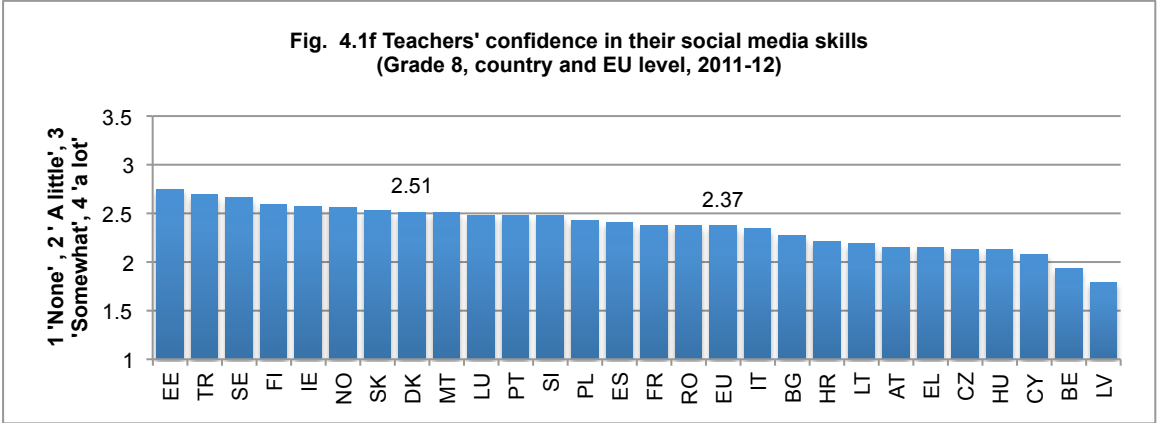
(by grade; mean score of students with 1 being 'none' and 4 being 'a lot'; Denmark and EU; 2011-12)



Comparing confidence levels at grade 8, teachers' confidence in their operational skills places Denmark in the middle group of countries (fig. 4.1e), which is also the case at grade 11 general, and higher at grade 4, but in the bottom group of countries at grade 11 vocational (main report, fig. 4.13).



At grade 8 Danish teachers are in the leading group of countries as regards social media confidence (fig. 4.1f), as is the case in other grades, except for grade 4 where they are ranked with the middle group of countries (main report, fig. 4.14).

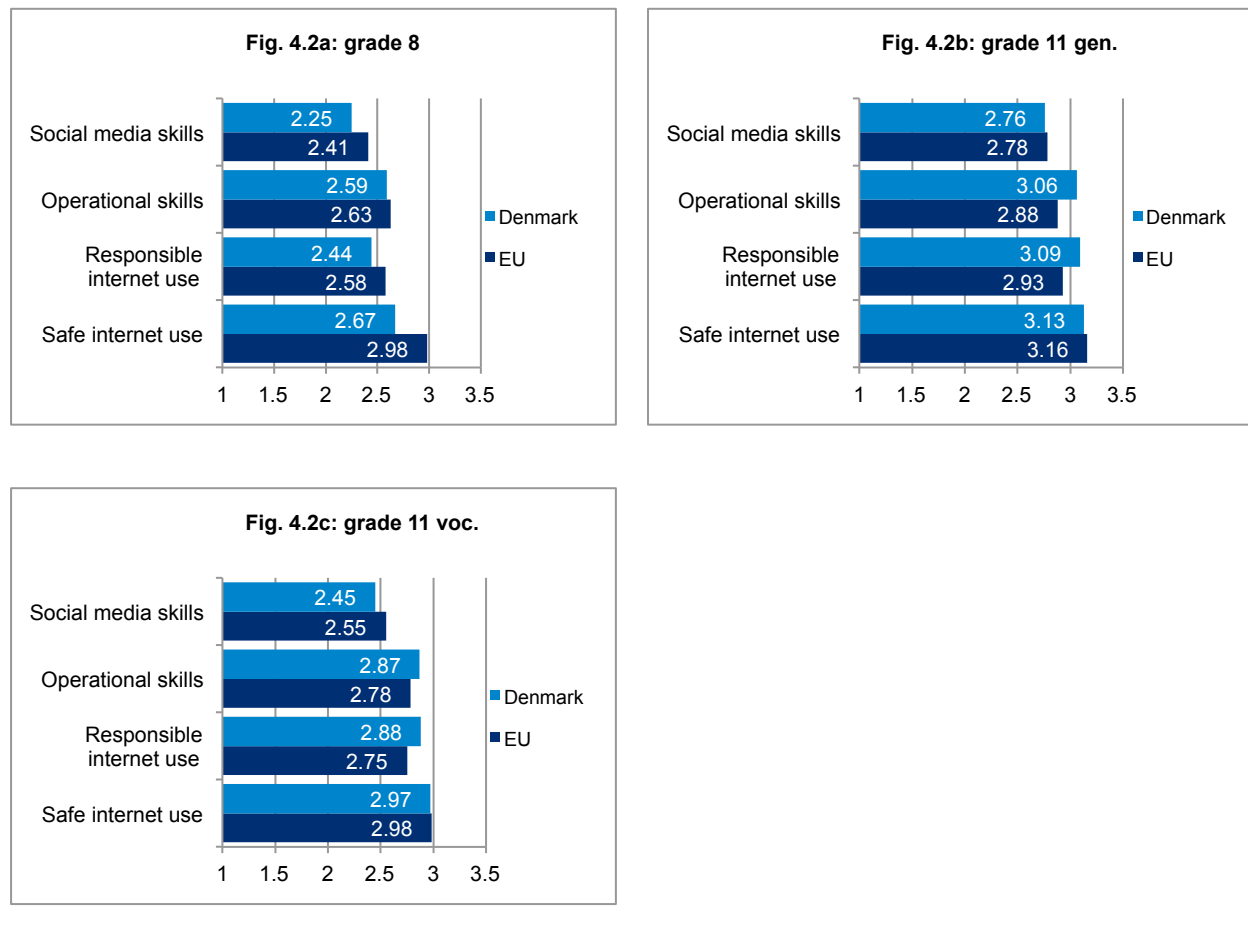


## STUDENTS

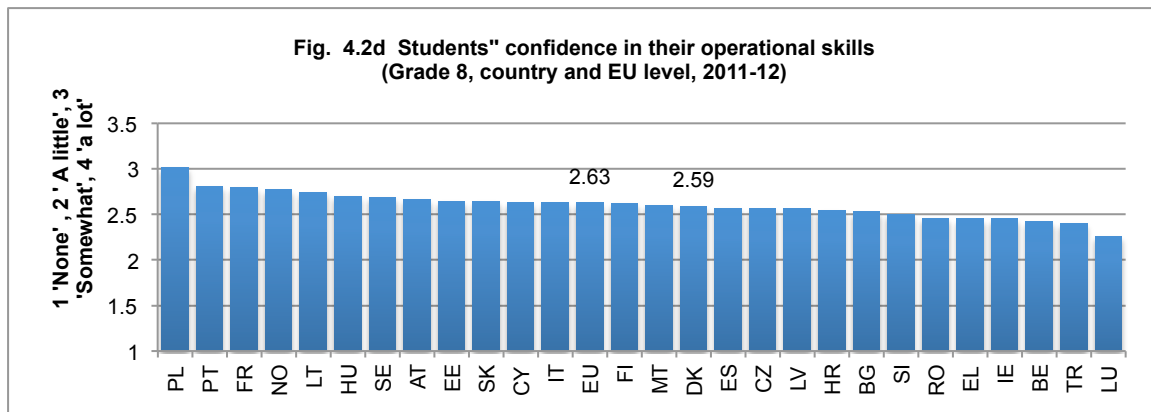
The mean score of students in Denmark is 3, and at Grade 8 and Grade 11 vocational is slightly above the EU mean, and lower at Grade 11 general.

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

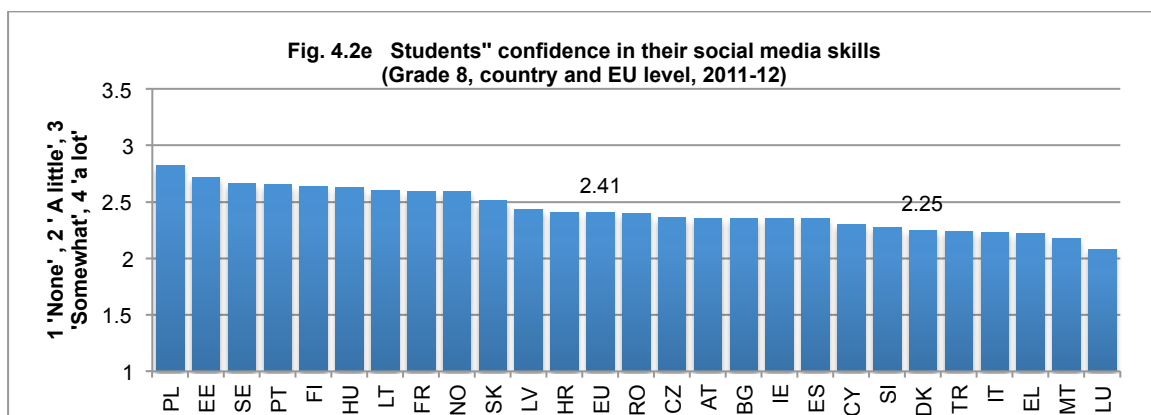
(by grade; mean score of students with 1 being 'none' and 4 being 'a lot'; Denmark and EU; 2011-12)



Confidence in operational skills is lower than the EU mean amongst grade 8 students (fig. 4.2d), but higher at grade 11 where Denmark is among the leading group of countries on this measures, ranked fourth highest at grade 11 vocational (main report, fig. 4.18).



Denmark is in the bottom group of countries for confidence in social media competence at grades 8 (fig. 4.2e), and in the middle group of countries at grade 11 (main report fig. 4.19).



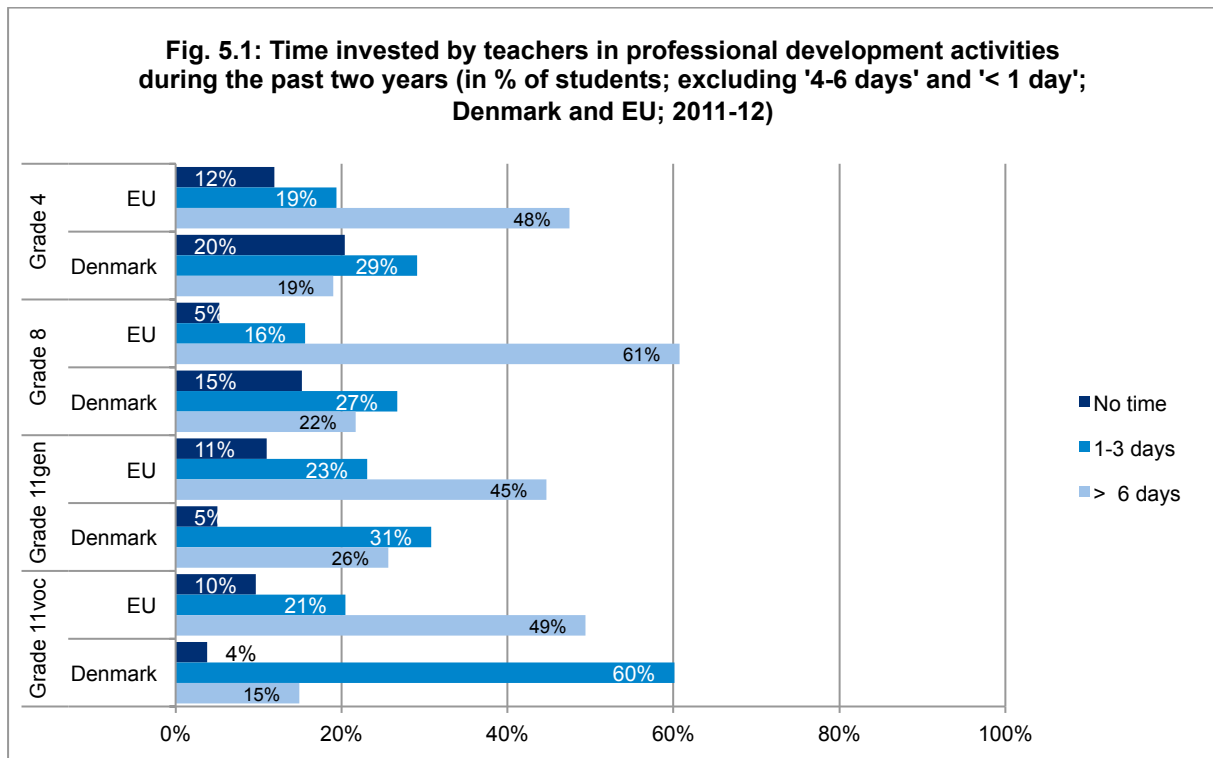
At grade 11 students in Denmark are in the middle group of countries in terms of confidence to use the internet safely, and in the leading group to use it responsibly (main report, fig. 4.16, 4.17), but at grade 8 it is in the bottom group of countries on both measures.

## 5. PROFESSIONAL DEVELOPMENT

### TIME SPENT ON TRAINING

A lower percentage of students at all grades (except 11 general) in Denmark 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 in general education, albeit to a much lesser extent where the situation in Denmark is closer to but still below the EU average.

In Denmark more students are in schools where teachers have spent between 1 and 3 days on ICT professional development activities, above the EU mean at all grades, and considerably so at grade 11 vocational. Those who have spent no time are above the EU mean at grade 4 and grade 8 but below at grade 11.





## ENGAGEMENT IN TRAINING

As Fig. 5.2 below shows, in Denmark more than the EU average of students is in schools where teachers have recently undergone ICT training provided by school staff, at grade 11, and less than at grade 4 and 8. Generally more are in schools where teachers take part in training through online communities above the EU average and considerable more at grade 11 vocational. Fewer students than the EU average are in schools where teachers have recently undertaken 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; Denmark and EU; 2011-12)

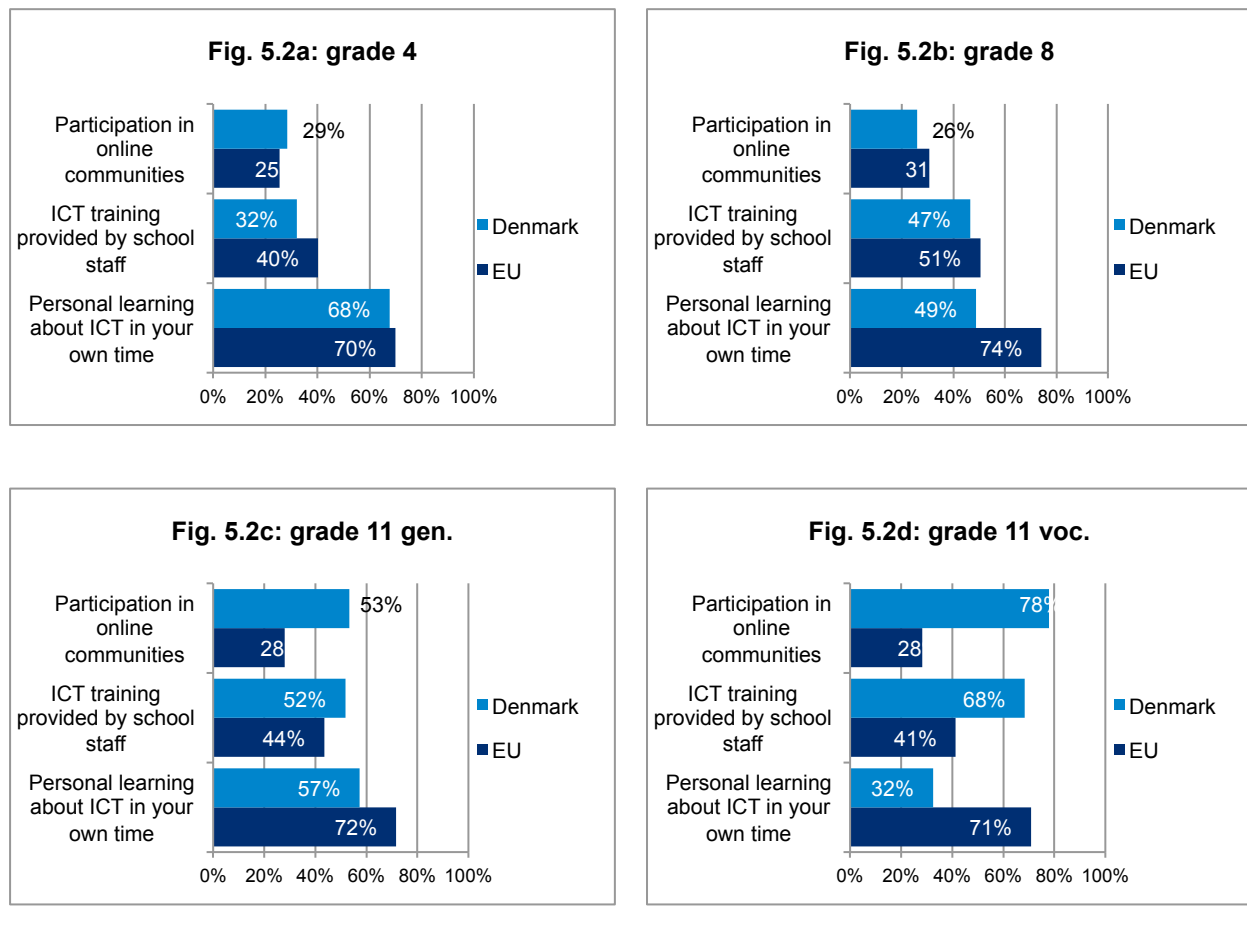
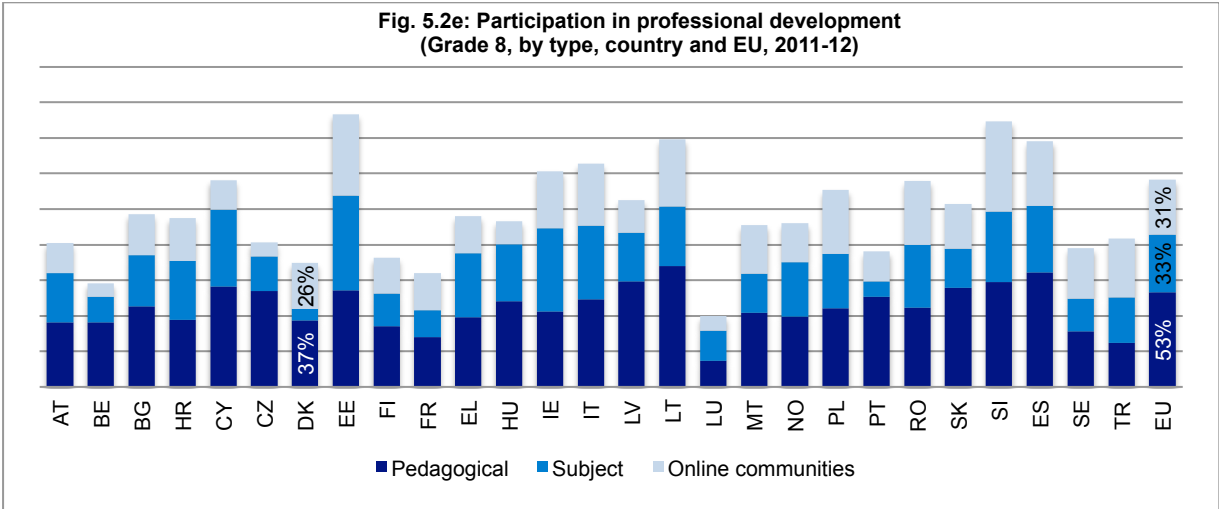


Fig. 5.2e shows that grade 8 teachers in Denmark have taken part in professional development of three types in the preceding two years less extensively than those in other countries.



In Denmark at grade 4 and grade 11 general percentages of students taught by teachers for whom ICT training is compulsory are notably above the average in the EU placing Denmark in the leading group of countries, but in the middle group at other grades (main report, fig. 4.2).

As regards percentages of teachers undertaking in personal learning about ICT in their own time (main report, fig. 4.4), Denmark is among the bottom five countries at all grades except grade 4 (in the range 32% to 68%) and last at grade 11 vocational.

The percentage of students taught by teachers participating in training provided by school staff places Denmark in the middle group of countries at grade 8 and grade 11 general, in the bottom group at grade 4 and fifth at grade 11 vocational (main report, fig.4.5).

Between 5 and 20 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 Denmark among the top group of countries on this indicator at grade 8 and 11 general, but in the bottom group at grade 11 vocational.

## 6. SCHOOL SUPPORT MEASURES

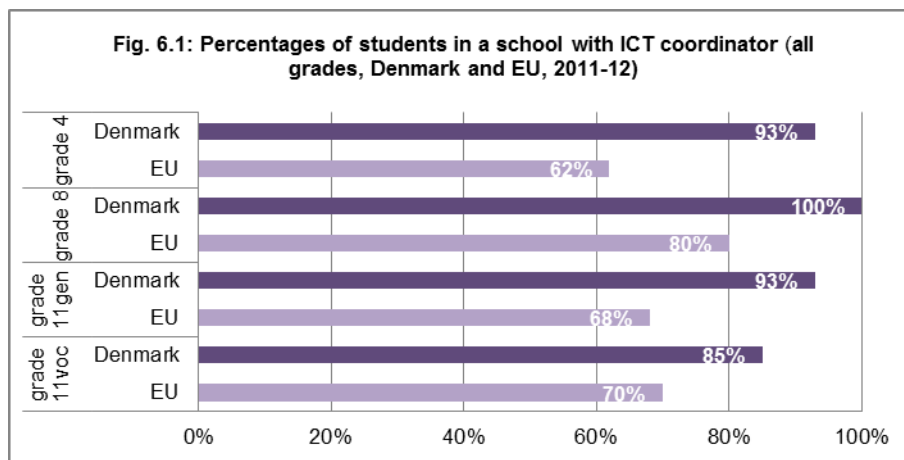
At grade 4 and grade 11 students in Denmark are in schools much higher than EU averages of ICT strategies are implemented, ranked first, (main report, fig. 5.3), in the leading group of schools at grade 11, and in the middle group and grade 11 vocational.

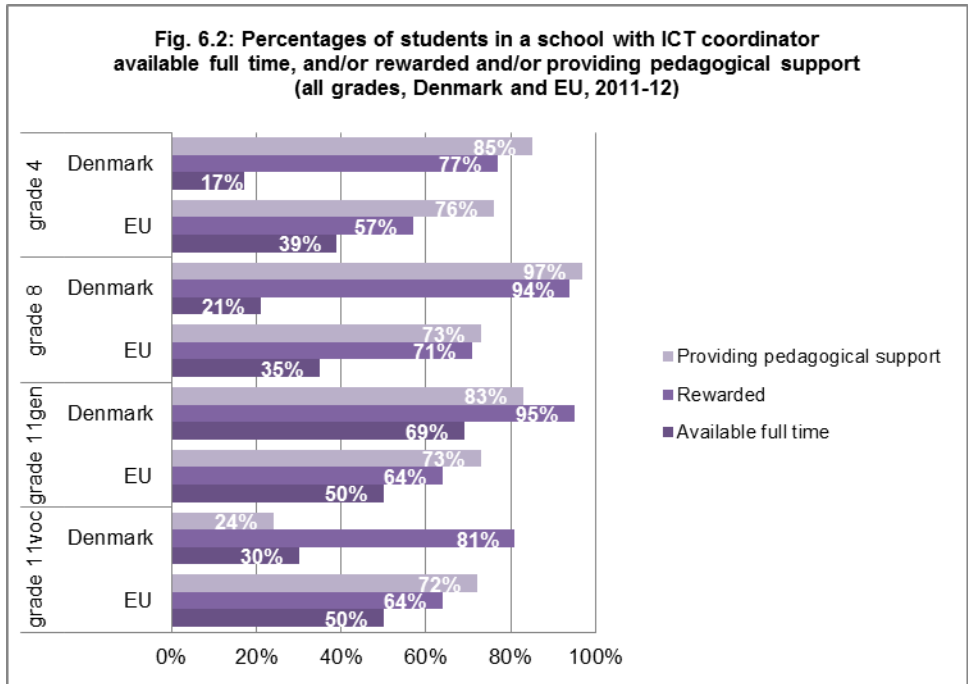
There are generally average percentages of students in schools with strategies to support teacher collaboration (main report, fig. 5.7), ranking Denmark in the middle group of countries, but in the bottom group at grade 11 vocational. At most grades Denmark is placed in the leading group of countries as regards strategies about responsible internet and social media use (main report, fig. 5.10), but in the bottom group at grade 11 general.

However Denmark is in the bottom group of countries for percentages of students in schools with change management programmes at all grades (main report, fig. 5.14), except grade 11 general where they are in the middle group.

### ICT COORDINATOR

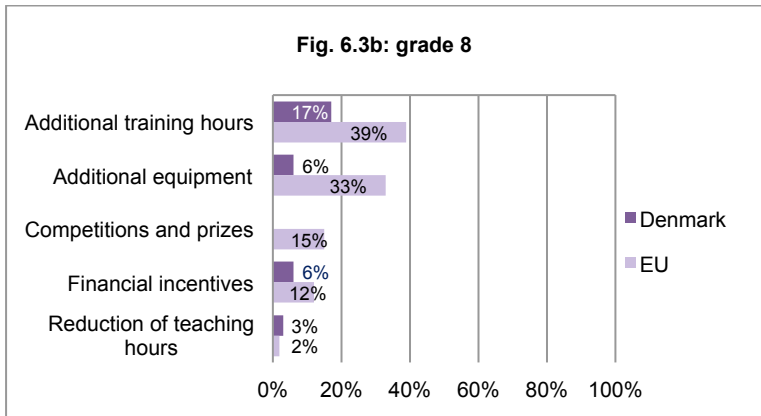
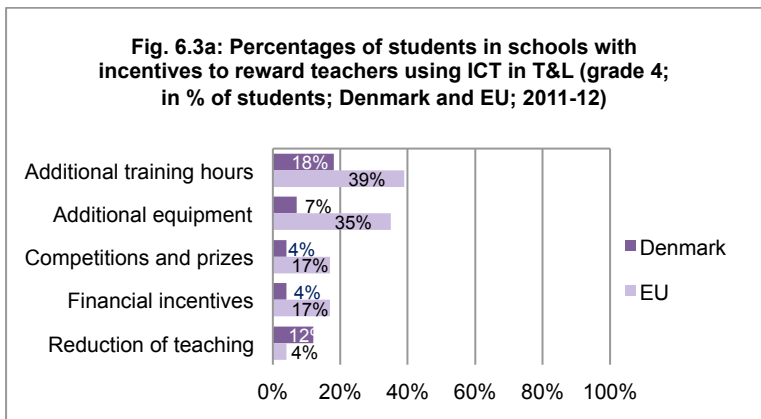
In Denmark, compared to the situation at EU level (see Fig. 6.1), the majority of students are in schools where ICT coordinators are provided, and all students at grade 8. However fewer students are in schools that employ full time ICT coordinators, except at grade 11 general which is notably higher than the EU level. Most students are in schools where the ICT coordinators provide pedagogical support, above the EU mean, except at grade 11 vocational which is considerably lower.

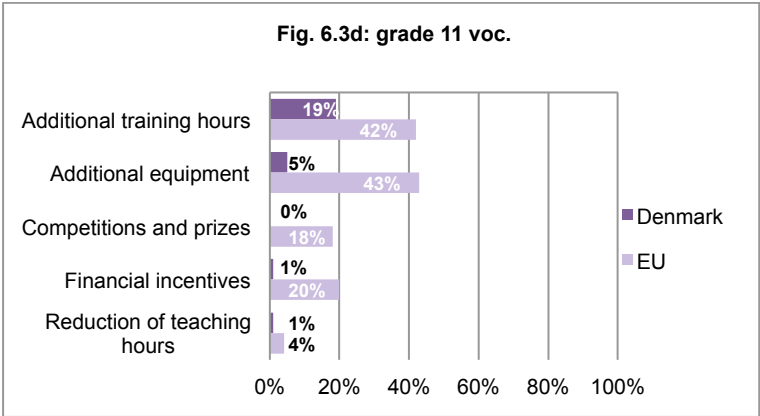
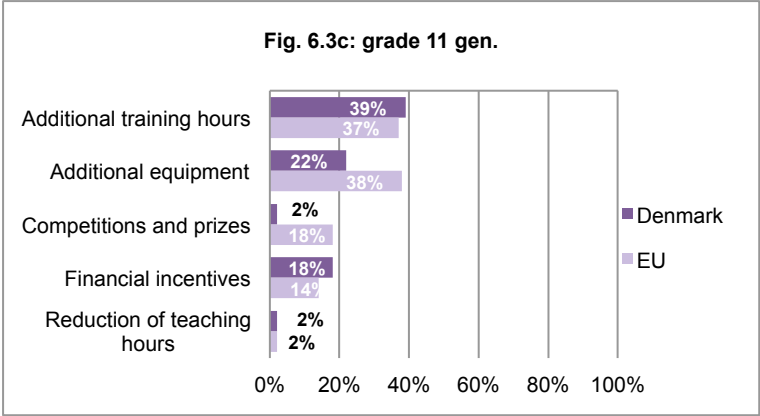




## INCENTIVES

In Denmark few students are in schools where there are forms of incentive or reward for using ICT, below the EU average at all grades, although there is some reduction in hours at grade 4.



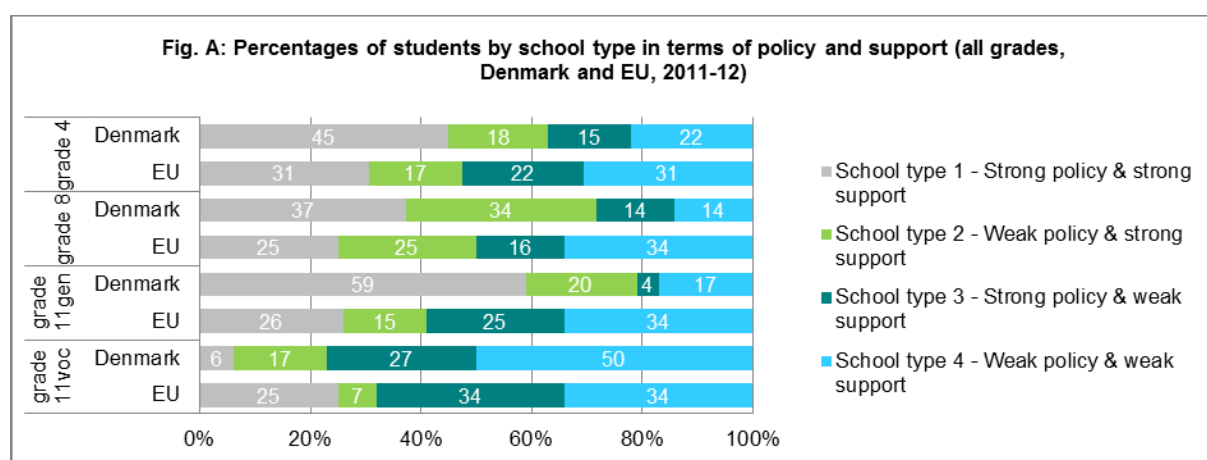


For further details please refer to Section 5 of the survey report.

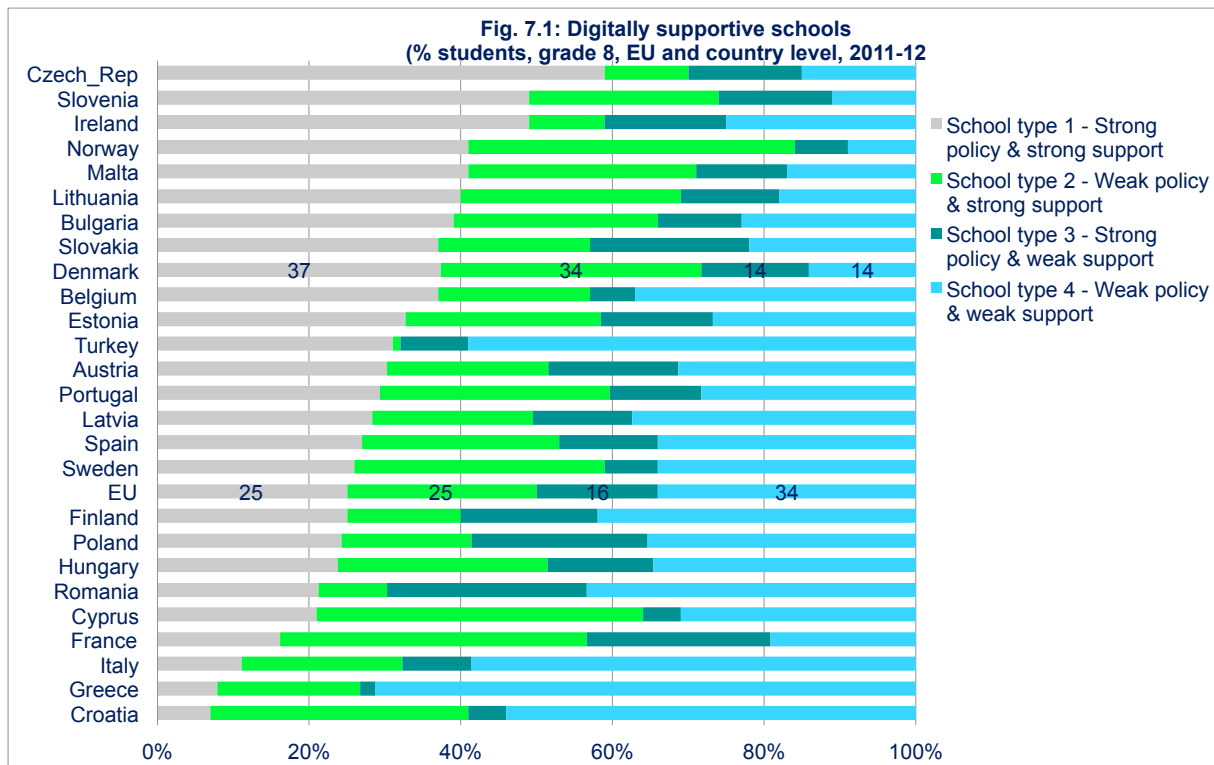
## 7: CLUSTERS

### 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 Denmark, percentages of students in schools with strong support are well above EU averages, except at grade 11 where there is a split between general schools where 79 percent of students are in strong support schools and vocational schools where the percentage is 23, below the EU mean.

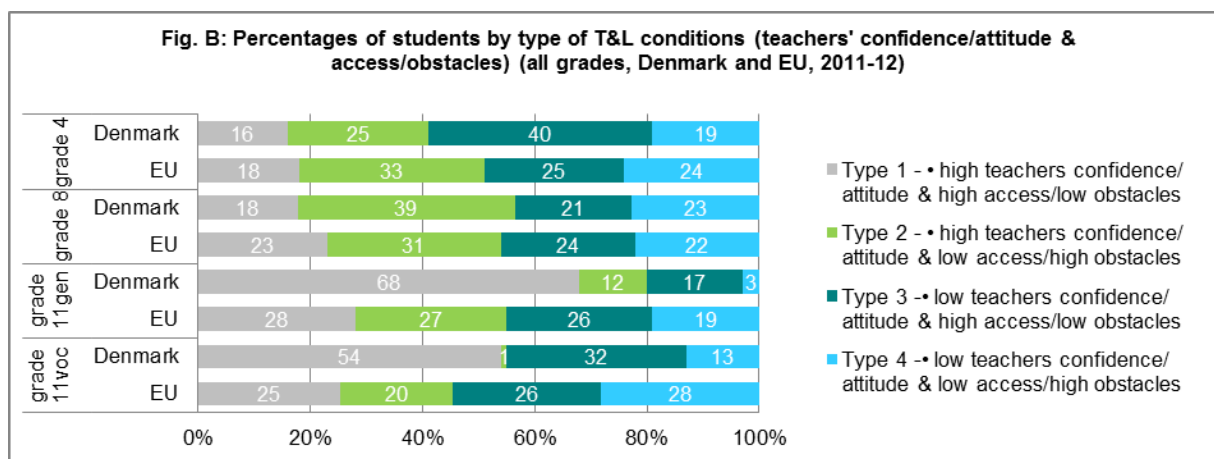


Denmark ranks among the leading group of countries at grade 8, having schools with strong policy and strong support (type 1), and more than 70% in schools with strong support (type 1 and type 2 schools). It is a similar situation at grade 4, while at grade 11 general Denmark ranks second among the leading group of schools, the majority of students in type 1 schools (main report fig. 8.1). However at grade 11 vocational Denmark ranks in the bottom group of schools with 50% of students in schools with weak policy and weak support (type 4 schools).

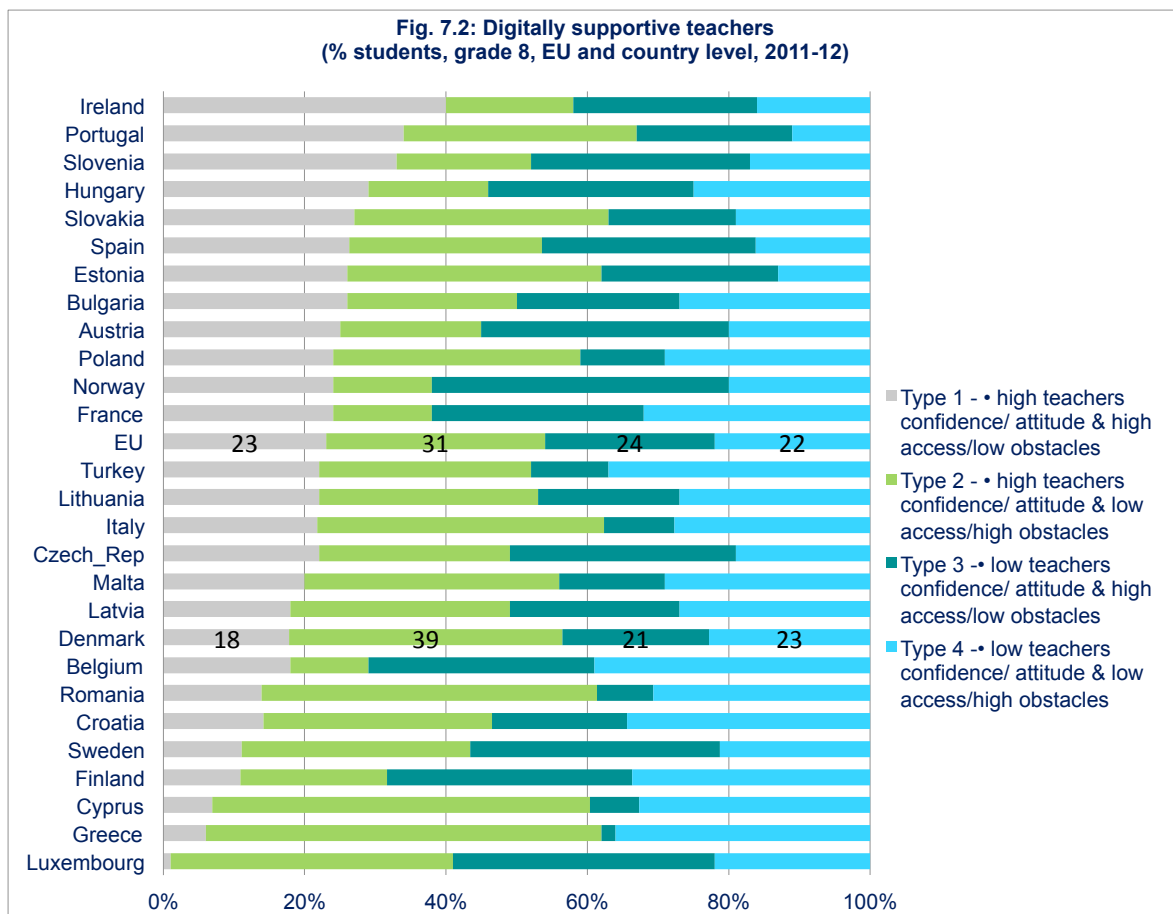


## DIGITALLY CONFIDENT AND SUPPORTIVE TEACHERS

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 Denmark are close to EU means at grades 4 and 8 and well above at grade 11 where the percentage is more than three times that for younger students.

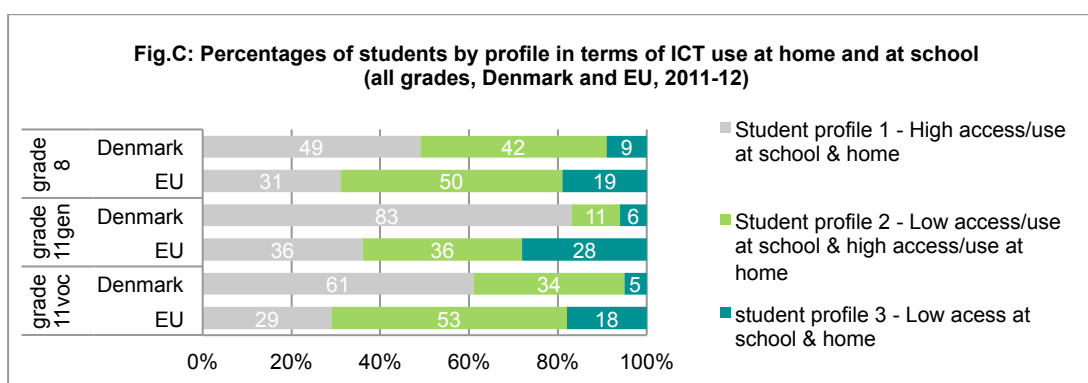


A low percentage of students at grade 8 compared to other countries is in schools with type 1 teachers (fig. 7.2), ranking Denmark in the lowest group of countries in this respect, as is the case at grade 4. However at grade 11 Denmark ranks top of the leading group of in terms of digitally supportive teachers, although more than 40% of students are in where there is low teacher confidence (main report, fig. 8.3).



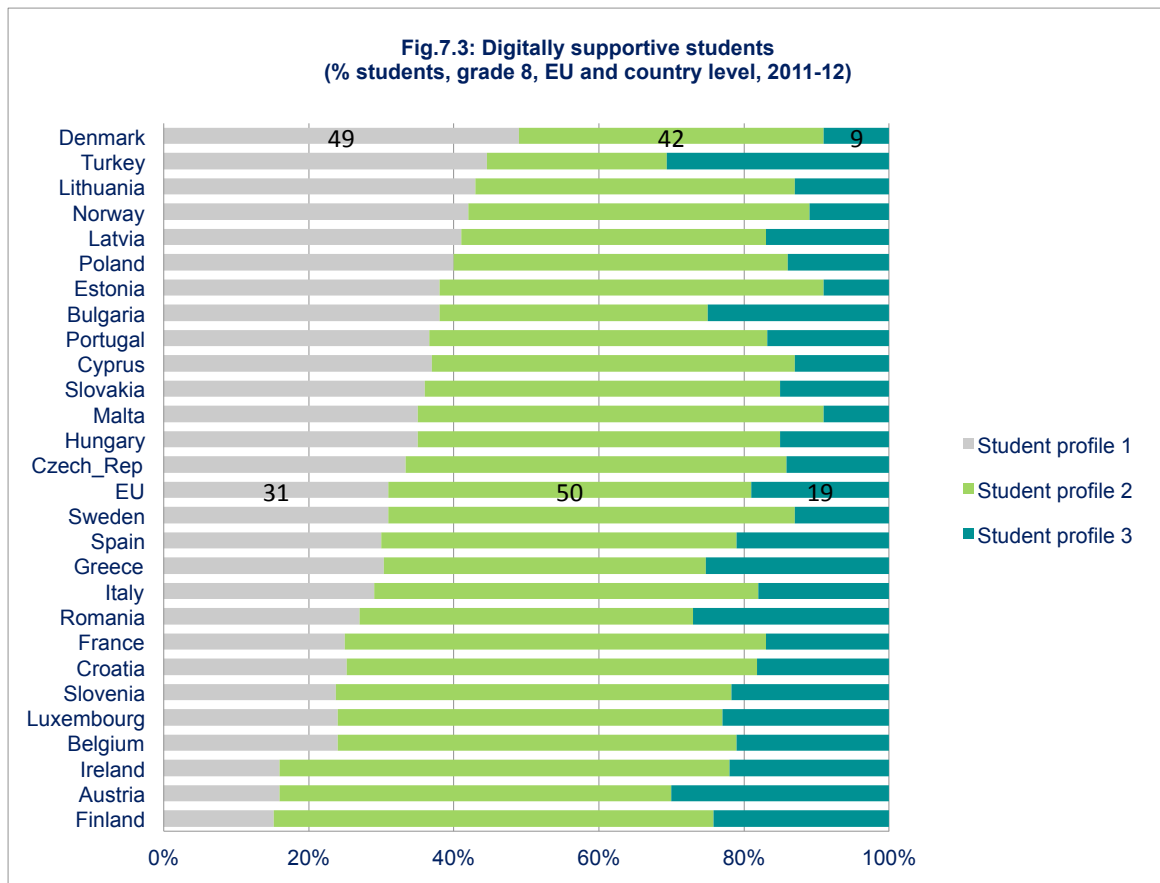
## THE DIGITALLY SUPPORTIVE STUDENT

A *digitally supportive student* being defined as having high ICT access and use at school and at home, the percentages of such students in Denmark are well above EU means, particularly at grade 11. Percentages of students with low access both at home and school are well below EU averages, but nevertheless are significant.



On this measure, percentages of type 1 grade 8 students rank first among the leading group of schools in Europe (fig. 7.3), as is the case at grade 11 but with higher percentages of type one students (main report, fig. 8.5). At grade 11 Denmark is also among the top ranking countries in terms of low percentages of type 3 students, i.e. few with low access both at school and at home.





## 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 Denmark only a small percentage of students are *not* in type 1 schools.

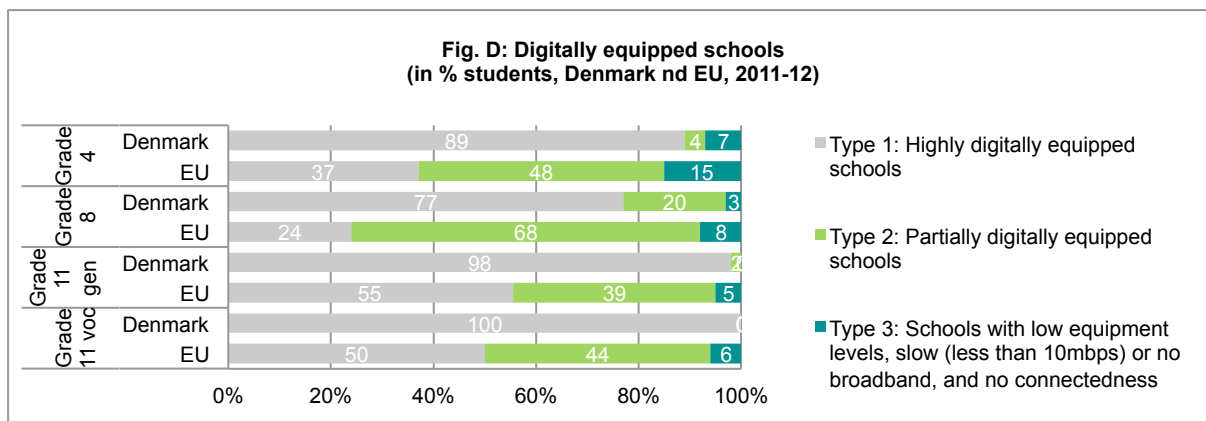
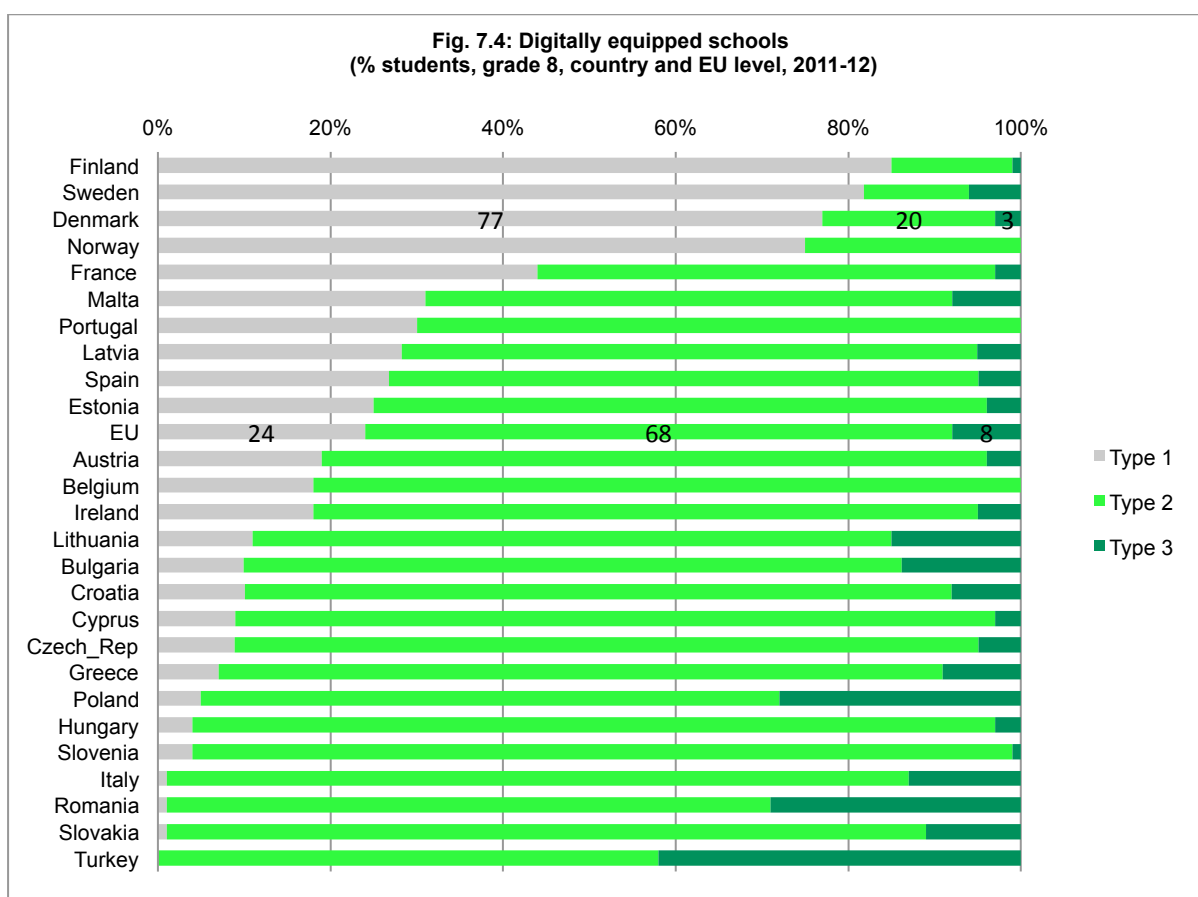


Fig. 7.4 shows how Denmark compares against other countries at grade 8 on this measure, ranking third. Very few students are in type 3 schools compared to other countries. At other grades (main report, fig. 1.13) Denmark is also in the top three countries for type 1 schools, having some of the lowest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



## CONCLUSION

Students in Denmark enjoy high levels of computer provision, fast broadband connectivity and 'connectedness' and use of ICT by both students and teachers is well above the EU mean. A particular feature of Danish schools is students' use of their own laptops and mobile phones. Teachers' confidence in social media use is above the EU mean and in the operational use of ICT around that in other countries, while students' is at or below EU means – quite significant given their high access to and use of technology. Training levels in the use of ICT are around EU averages but there is more in-school and peer-based support.

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.

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
Denmark	34.0	(4.6)	30.4	(2.8)	51.7	(6.7)	18.1	(12.8)
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	Denmark	15.9%	(8.2)	0.0%	(0.0)	8.7%	(6.5)
	EU	8.0%	(1.3)	16.5%	(2.3)	21.4%	(2.4)
2. Grade8	Denmark	6.5%	(4.9)	0.0%	(0.0)	6.5%	(4.9)
	EU	5.0%	(0.8)	9.6%	(1.3)	19.1%	(2.3)
3. Grade11gen	Denmark	0.0%	(0.0)	0.0%	(0.0)	0.0%	(0.0)
	EU	3.7%	(1.3)	6.2%	(0.8)	18.0%	(2.8)
4. Grade11voc	Denmark	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
15.9%	(8.2)	8.0%	(5.9)	31.5%	(15.2)	19.9%	(9.1)
22.1%	(2.2)	19.5%	(2.2)	8.6%	(1.4)	4.0%	(1.3)
3.2%	(1.0)	6.5%	(4.9)	51.7%	(14.5)	25.7%	(10.1)
27.7%	(2.4)	24.8%	(2.3)	8.6%	(1.6)	5.2%	(1.2)
0.0%	(0.0)	4.6%	(3.3)	38.6%	(7.6)	56.8%	(7.7)
23.2%	(3.0)	25.4%	(3.9)	13.3%	(2.6)	10.3%	(8.0)
0.0%	(0.0)	15.6%	(14.8)	49.5%	(48.9)	34.9%	(35.6)
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	Denmark	92.6%	(5.5)	70.9%	(14.3)	7.7%	(5.7)
	EU	69.7%	(3.6)	26.8%	(2.0)	15.9%	(2.2)
2. Grade8	Denmark	97.1%	(3.0)	91.4%	(5.2)	2.9%	(0.8)

Level	COUNTRY	SchWebsite	SE1	VLE	SE2	NoConnect	SE3
	EU	86.0%	(1.6)	61.4%	(3.0)	8.4%	(1.2)
3. Grade11gen	Denmark	100.0%	(0.0)	97.8%	(2.3)	0.0%	(0.0)
	EU	91.7%	(3.1)	61.0%	(7.9)	7.0%	(2.9)
4. Grade11voc	Denmark	100.0%	(0.0)	74.9%	(27.3)	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
1. Grade4	Denmark	15.8%	(7.3)	3.2%	(0.8)	21.8%	(8.4)	12.6%	(6.5)	33.9%
	EU	3.0%	(0.4)	10.0%	(2.4)	13.9%	(1.4)	18.0%	(1.8)	19.1%
2. Grade8	Denmark	8.6%	(3.8)	7.4%	(3.1)	23.4%	(7.1)	40.5%	(13.5)	17.2%
	EU	7.4%	(1.0)	6.8%	(0.8)	14.7%	(0.9)	20.7%	(1.2)	18.9%
3. Grade11gen	Denmark	34.7%	(5.3)	13.9%	(3.6)	20.9%	(4.5)	12.0%	(3.5)	12.8%
	EU	7.0%	(1.0)	8.1%	(1.4)	14.9%	(1.4)	22.9%	(3.8)	17.1%
4. Grade11voc	Denmark	24.8%	(21.5)	7.9%	(6.5)	14.4%	(13.0)	32.3%	(12.0)	3.1%
	EU	19.3%	(1.4)	12.1%	(1.2)	16.8%	(1.0)	19.3%	(2.8)	13.2%

SE5	From1to5	SE6	LessThan1	SE7	DontKnow	SE8
(13.6)	6.3%	(4.7)	0.0%	(0.0)	6.3%	(4.7)
(2.1)	20.7%	(2.7)	8.7%	(1.4)	6.7%	(1.4)
(5.7)	2.1%	(1.6)	0.0%	(0.0)	0.8%	(0.2)
(1.4)	14.4%	(1.0)	11.0%	(1.0)	6.1%	(0.8)
(3.9)	2.8%	(2.3)	0.7%	(0.1)	2.1%	(1.5)
(1.8)	14.0%	(1.5)	10.3%	(1.4)	5.7%	(0.9)
(2.2)	3.2%	(2.2)	0.0%	(0.0)	14.3%	(13.1)
(1.3)	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
Denmark	43.5%	(12.1)	39.7%	(10.4)	71.0%	(5.7)	54.9%	(14.8)
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	Denmark	51.3	(2.2)	42.7	(11.1)	69.6	(2.8)
	EU	28.0	(0.8)	11.2	(0.7)	53.3	(1.1)
2. Grade11gen	Denmark	45.7	(2.7)	88.1	(2.5)	85.0	(2.1)
	EU	34.6	(1.3)	10.7	(1.1)	50.5	(1.5)

Level	Country	OwnMobPhone	SE1	OwnLaptop	SE2	SchoolComputer	SE3
3. Grade11voc	Denmark	65.3	(7.0)	88.8	(3.6)	74.7	(18.7)
	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	Denmark	2.23	(0.22)	3.13	(0.13)
	EU	2.41	(0.03)	2.98	(0.02)
2. Grade8	Denmark	2.51	(0.13)	3.05	(0.06)
	EU	2.37	(0.04)	3.00	(0.03)
3. Grade11gen	Denmark	2.48	(0.12)	3.03	(0.06)
	EU	2.38	(0.07)	3.01	(0.03)
4. Grade11voc	Denmark	2.66	(0.38)	2.95	(0.16)
	EU	2.51	(0.03)	3.16	(0.02)

**Fig. 4.2**  
**Scales Students ICT skills**

Level	country	SocialMediaSkills	SE1	OperatSkills	SE2	RespInternUse	SE3	SafelInternUse	SE4
1. Grade8	Denmark	2.25	(0.04)	2.59	(0.04)	2.44	(0.04)	2.67	(0.06)
	EU	2.41	(0.02)	2.63	(0.02)	2.58	(0.02)	2.98	(0.02)
2. Grade11gen	Denmark	2.76	(0.03)	3.06	(0.03)	3.09	(0.04)	3.13	(0.03)
	EU	2.78	(0.02)	2.88	(0.01)	2.93	(0.03)	3.16	(0.02)
3. Grade11voc	Denmark	2.45	(0.13)	2.87	(0.10)	2.88	(0.11)	2.97	(0.06)
	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	Denmark	19.0%	(7.9)	29.1%	(9.7)	20.4%	(14.5)
	EU	47.5%	(4.2)	19.4%	(3.0)	11.9%	(2.4)
2. Grade8	Denmark	21.7%	(10.1)	26.7%	(7.7)	15.2%	(5.0)
	EU	60.7%	(1.6)	15.6%	(1.0)	5.2%	(0.5)
3. Grade11gen	Denmark	25.6%	(5.2)	30.8%	(5.2)	5.0%	(2.7)
	EU	44.7%	(5.2)	23.1%	(3.4)	11.0%	(1.6)
4. Grade11voc	Denmark	14.9%	(12.2)	60.1%	(27.3)	3.8%	(4.2)
	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	Denmark	28.5%	(9.5)	32.2%	(10.1)	67.7%	(10.3)

Level	COUNTRY	OnlineComm	SE1	ICTtraining	SE2	PersonalLearning	SE3
	EU	25.4%	(2.5)	40.3%	(3.2)	70.0%	(2.8)
2. Grade8	Denmark	25.9%	(5.3)	46.5%	(13.2)	48.9%	(12.2)
	EU	30.8%	(1.6)	50.5%	(1.7)	74.2%	(1.3)
3. Grade11gen	Denmark	53.2%	(5.7)	51.7%	(5.9)	57.3%	(6.0)
	EU	28.0%	(2.4)	43.5%	(2.2)	71.7%	(2.2)
4. Grade11voc	Denmark	77.8%	(18.2)	68.4%	(23.2)	32.4%	(28.2)
	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
Denmark	92.6%	(5.5)	100.0%	(0.0)	93.4%	(3.8)	84.7%	(18.5)
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	Denmark	16.6%	(8.6)	76.5%	(15.7)	84.5%	(16.1)
	EU	39.3%	(3.0)	56.5%	(3.0)	75.9%	(2.3)
2. Grade8	Denmark	20.6%	(8.4)	94.3%	(4.3)	97.1%	(3.0)
	EU	34.8%	(2.9)	70.6%	(2.4)	72.5%	(2.5)
3. Grade11gen	Denmark	69.1%	(7.4)	95.4%	(3.3)	83.4%	(5.9)
	EU	49.6%	(6.9)	63.6%	(7.7)	73.4%	(4.2)
4. Grade11voc	Denmark	29.8%	(41.6)	81.2%	(32.5)	23.7%	(33.2)
	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	Denmark	18.5%	(8.4)	7.4%	(5.5)	3.7%	(0.9)	3.7%	(0.9)	11.8%	(7.0)	0.0%	(0.0)
	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	Denmark	17.2%	(7.5)	5.7%	(4.3)	0.0%	(0.0)	5.6%	(4.2)	2.9%	(0.8)	4.2%	(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	Denmark	38.6%	(7.6)	22.1%	(6.4)	2.2%	(0.3)	17.7%	(5.9)	2.2%	(0.3)	4.9%	(3.5)
	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	Denmark	18.5%	(20.9)	4.7%	(6.2)	0.0%	(0.0)	0.8%	(0.8)	0.8%	(0.8)	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	Denmark	45	(12.31)	18	(8.41)	15	(7.58)	22	(14.64)

Level	COUNTRY	Type1	SE1	Type2	SE2	Type3	SE3	Type4	SE4
	EU	31	(2.70)	17	(3.17)	22	(2.53)	31	(2.98)
2. Grade8	Denmark	37	(11.24)	34	(15.43)	14	(6.81)	14	(6.81)
	EU	25	(1.91)	25	(2.20)	16	(1.83)	34	(2.15)
3. Grade11gen	Denmark	59	(7.50)	20	(6.05)	4	(3.12)	17	(5.77)
	EU	26	(2.28)	15	(8.69)	25	(3.74)	34	(5.30)
4. Grade11voc	Denmark	6	(7.05)	17	(19.51)	27	(29.97)	50	(47.10)
	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	Denmark	16	(7.26)	25	(8.95)	40	(13.09)	19	(7.91)
	EU	18	(2.02)	33	(2.95)	25	(2.33)	24	(2.64)
2. Grade8	Denmark	18	(5.45)	39	(14.06)	21	(6.08)	23	(7.26)
	EU	23	(1.43)	31	(1.27)	24	(1.52)	22	(1.17)
3. Grade11gen	Denmark	68	(5.80)	12	(3.88)	17	(4.41)	3	(2.28)
	EU	28	(2.41)	27	(2.68)	26	(1.65)	19	(1.67)
4. Grade11voc	Denmark	54	(14.39)	1	(0.44)	32	(6.35)	13	(12.22)
	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	Denmark	49	(5.88)	42	(5.53)	9	(1.63)
	EU	31	(1.00)	50	(0.85)	19	(0.67)
2. Grade11gen	Denmark	83	(2.47)	11	(1.81)	6	(1.13)
	EU	36	(1.18)	36	(1.00)	28	(1.47)
3. Grade11voc	Denmark	61	(13.79)	34	(13.85)	5	(1.92)
	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	Denmark	89	(6.62)	4	(0.93)	7	(5.45)
	EU	37	(4.43)	48	(4.15)	15	(2.12)
2. Grade8	Denmark	20	(8.07)	77	(8.67)	3	(0.75)
	EU	68	(2.87)	24	(3.31)	8	(1.16)
3. Grade11gen	Denmark	98	(2.23)	2	(0.33)	0	(0.0)
	EU	55	(12.27)	39	(10.34)	5	(2.06)
4. Grade11voc	Denmark	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). In fig. 1.1: Participation only, 'EU mean' refers to all 31 countries in the survey.

**Figs.2 and 3.** Any discrepancy between values in the two tables in each section is explained by the slightly different method of calculation used. For further information please refer to the Technical Report.

**Participation.** For the Survey of Schools: ICT and Education, 300 schools in Denmark 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 Denmark participation levels at grade 11 vocational are below the 20% threshold, meaning that results at that grade should be interpreted with some caution.

