University of Liège
Psychology and
Education

SURVEY OF SCHOOLS: ICT IN EDUCATION

COUNTRY PROFILE: BULGARIA

November 2012

Table of Contents

1. INTRODUCTION

ICT IN THE SCHOOL EDUCATION SYSTEM OF BULGARIA

The Ministry of Education, Youth and Science (MEYS) has central management of the 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. 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**, in Bulgaria there are national strategies in place to foster the use of ICT in different areas. There are central steering documents for all ICT learning objectives at secondary education level, but not at primary level. 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, with ICT included in a technology subject in primary, and taught as a separate subject in secondary schools. Recommendations or suggestions and support are provided only for the use of computers, projectors or beamers, and recommendations or suggestions for all ICT hardware except communication software and digital resources. 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 no central recommendations on the use of ICT in student assessment as regards on-screen testing, interactive testing and using ICT as an information source. Public-private partnerships for promoting the use of ICT are encouraged for ICT training for teachers and curriculum development.

THE SURVEY OF SCHOOLS: ICT IN EDUCATION

In 2011, the European Commission Directorate General Communications Networks, Content and Technology[1] 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.

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

---

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

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 Bulgaria there are half the numbers of computers (desktop, laptop, whether or not connected to the internet) available for students at all grades relative to the EU average at all grades except grade 11 general where is there are nearly three times the average number of students per computer (see main report fig. 1.1). In most countries the older the student the more the computers, as can be seen from the EU means, and this trend is also reflected in Bulgaria at grade 11 vocational. Fig. 2.1 shows that at grade 8 Bulgaria ranks in the bottom five countries on this indicator with 11 students per computer.

Fig. 2.1: Students per computer
(Grade 8, country and EU level, 2011-12)
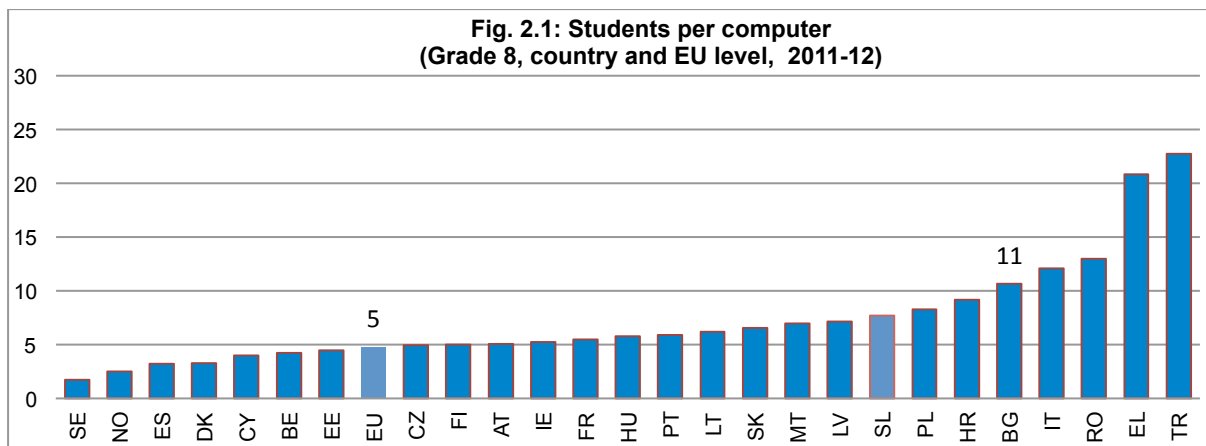
In Bulgaria there is double the EU average of students to internet-connected desktop computers at grade 8. As for computers connected to the internet (fig. 2.2), in Bulgaria most computers are desktops, with relatively few laptops in evidence. There are fewer internet-connected desktop computers than the EU average at grade 8, the sixth highest student to computer ratio.

In terms of computers connected to the internet, in Bulgaria there are considerably fewer laptops at all grades compared to the EU average; with a ratio of more than 140 per students per computer at grade 4, Bulgaria is in the bottom group of countries. At grade 11 however Bulgaria ranks closer to the middle group of countries although still considerably below the EU average (see main report fig 1.2). This may explain the high percentage of students who bring their own laptop to school, in at particular grade 8 but also at other grades.

Fig. 2.2: Students per internet-connected desktop and laptop computer
(Grade 8, country and EU level, 2011-12)
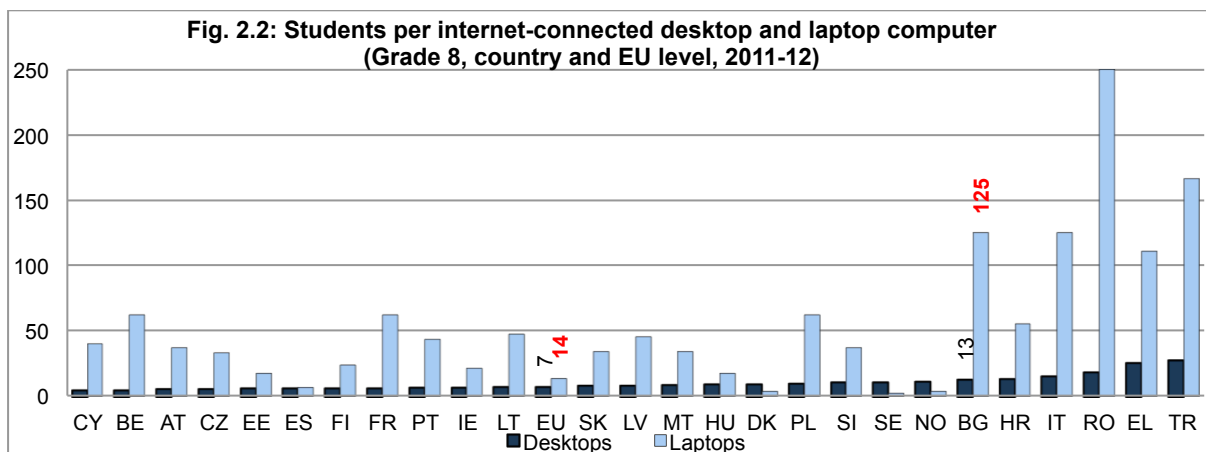
In Bulgaria computers are located in dedicated labs at all grades, among the highest percentages (more than 80%) in the EC (main report, fig. 1.3). Bulgaria is in the lowest group of countries for percentages of students in schools where over 90% of computers are operational (fifth from lowest), with 56% compared to the EU average of 75 % (main report, fig. 1.4).

Few students have access to interactive whiteboards; at grade 8 Bulgaria is in the lowest group of countries (main report, fig. 1.5). This may go some way to explain why Bulgaria appears to have more mobile interactive whiteboards that most other countries.

BROADBAND

In Bulgaria broadband speeds at all grades are higher than in most other countries, and only between 4% and 5% of students, depending on grade, are in schools without broadband.

Fig. 2.3: Broadband speed
(% students excluding 'don't know', Bulgaria and EU, 2011-12)
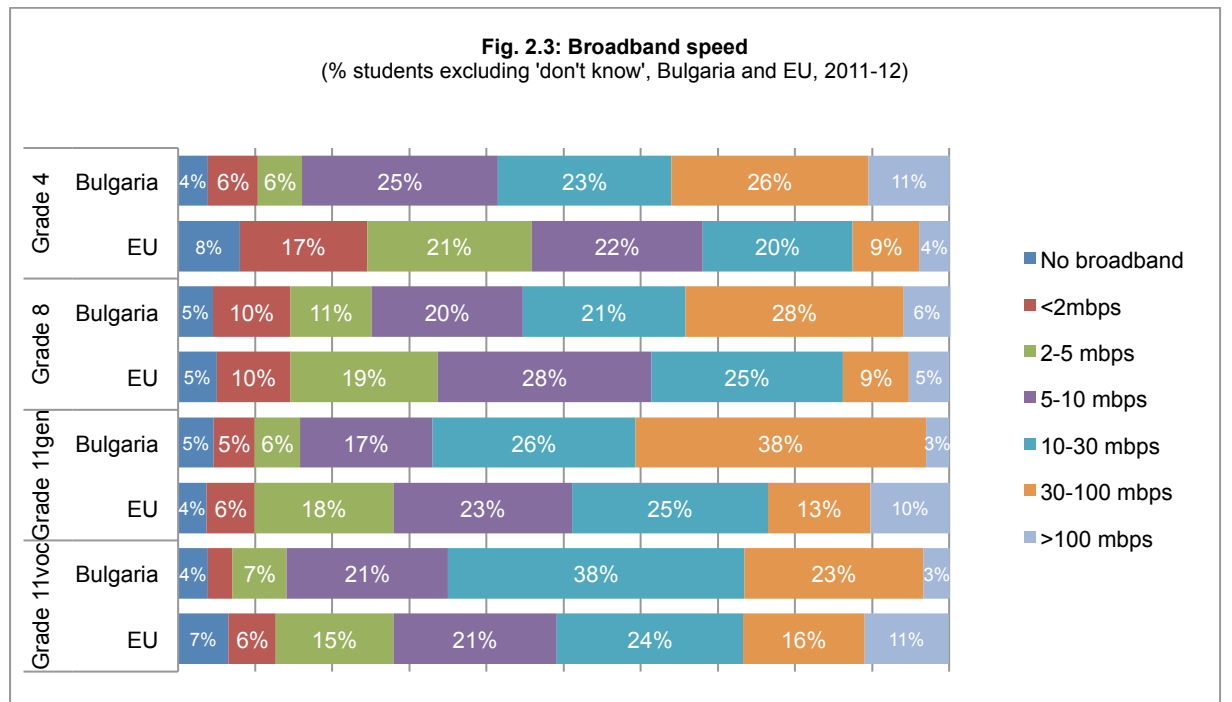
Figure 2.4 shows how Bulgaria compares with other countries at grade 8: in the middle group of countries for the percentage of students in schools with more than 100 mbps. At grade 4 Bulgaria ranks fifth on this indicator, in the bottom eight at grade 11 (main report fig. 1.8).

Fig. 2.4: Broadband speed
(Grade 8, country and EU level, 2011-12, ranked by >100mbps, 2011-12)
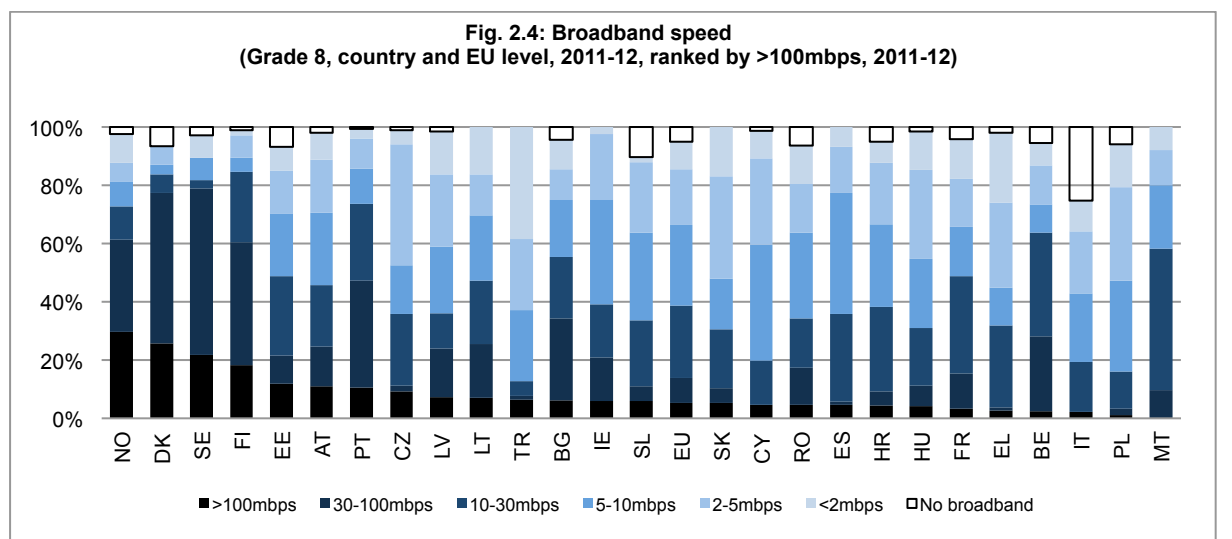
The relationship between the population size of the school's locality and broadband speed, with more densely populated areas having faster broadband speeds than rural areas, is a factor in Bulgaria at grade 4 (main report, section 1).

'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 Bulgaria, the percentage of students in schools with a website is below the EU mean at all grades. The percentage of students in schools with a virtual learning environment is below the EU mean at grade and considerably at 8 and 11. 'Unconnected' schools are above the EU average at all grades.

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

		School website	VLE	No connectedness
Grade 4	Bulgaria	61%	24%	20%
	EU	79%	32%	15%
Grade 8	Bulgaria	72%	22%	14%
	EU	86%	58%	10%
Grade 11gen	Bulgaria	82%	21%	13%
	EU	92%	61%	7%
Grade 11voc	Bulgaria	87%	26%	7%
	EU	93%	63%	6%
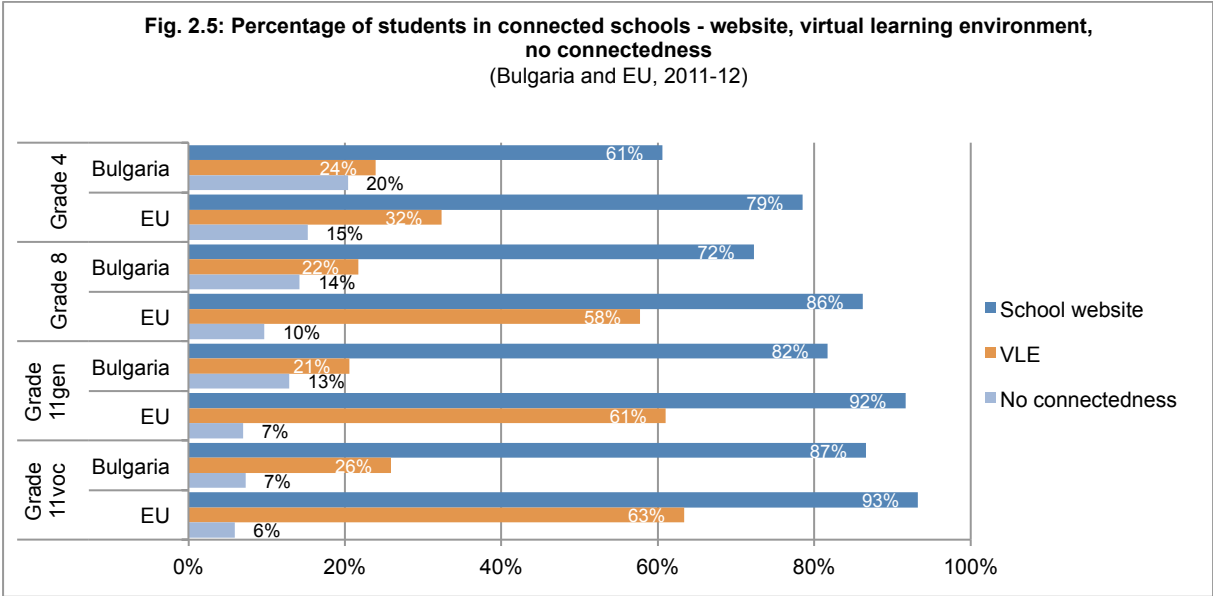
Bulgaria ranks fifth from the bottom as regards virtual learning environments at grade 8, as seen in fig. 2.6, and this is also the case at grade 11. At grade 4 however Bulgaria is in the middle group of countries, close to the EU average (main report, fig 1.10).

Fig. 2.6: % of students in schools with a virtual learning environment
(Grade 8; country and EU level, 2011-12)
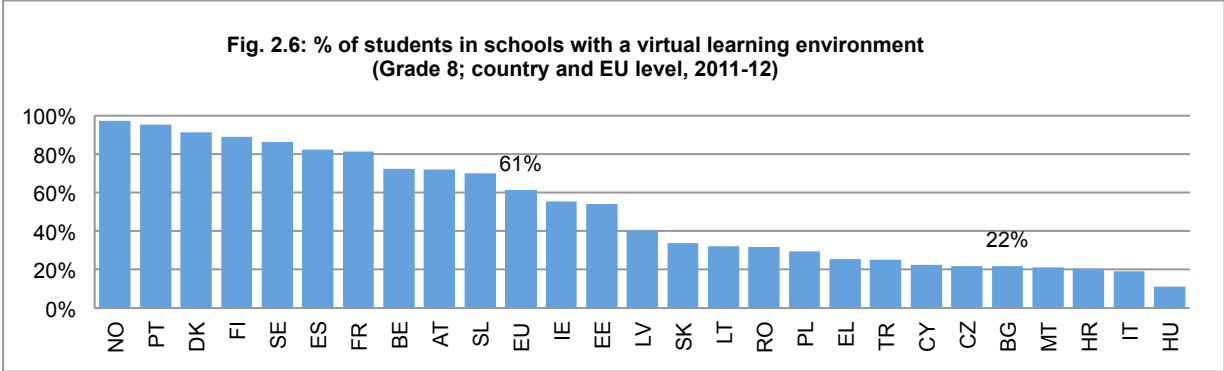
3. FREQUENCY OF ICT USE IN CLASS

FREQUENCY OF ICT USE BY TEACHERS IN CLASS

Teachers' frequency of use of ICT equipment in lessons, shown in the chart below, is close to the EU average at all grades. There are slightly more teachers using ICT in more than 25% of lessons, above the EU average, at grades 4 and 11 vocational but fewer at the other grades. The most intense use is at grade 11 general where about one in five use ICT with their students in more than 75% of lessons, close to the EU level.

Fig. 3.1: Frequency of use of ICT equipment by teachers in lessons
(in % students, Bulgaria and EU, 2011-12)
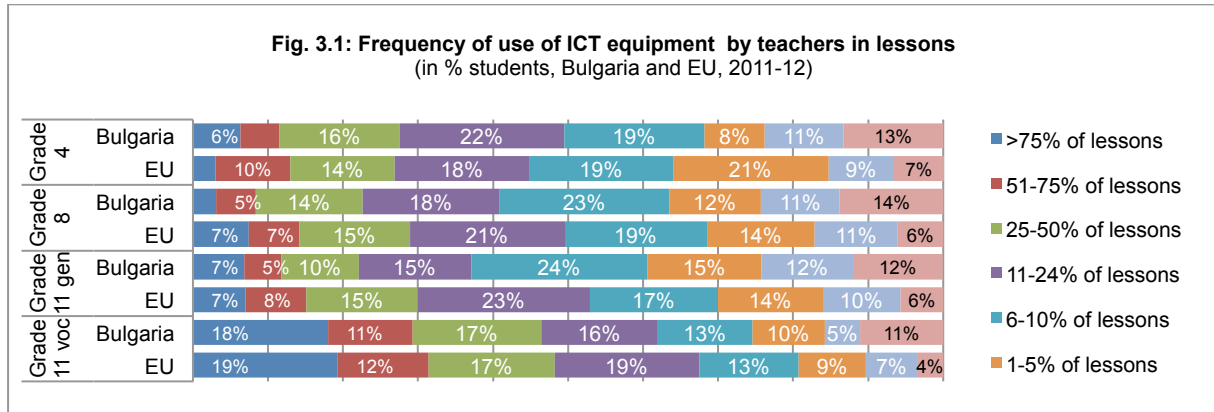
There are higher percentages of teachers using ICT in more than 25% of lessons than the EU average at grade 4 and grade 11 vocational, but lower at other grades (fig. 3.2).

Fig. 3.2: Teachers' use of ICT in more than 25% of lessons
(% schools, Bulgaria and EU, 2011-12)
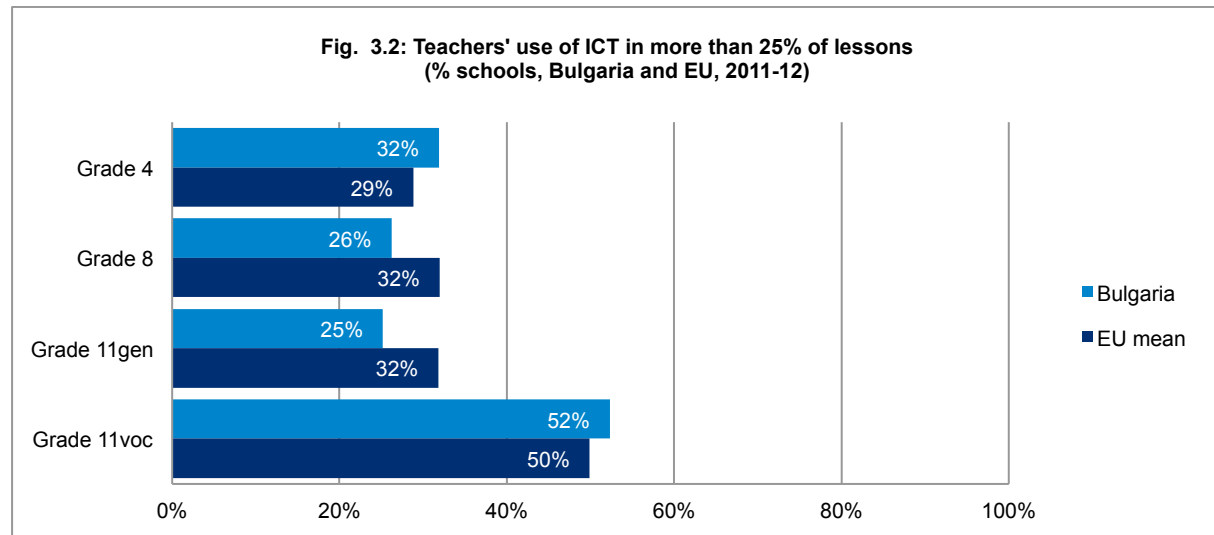
Teachers in Bulgaria are relatively low users of ICT in lessons when considering percentages using ICT in more than one in four lessons, ranking twelfth at grade 4.

Fig 3.3 shows Bulgaria ranks in the bottom five at grade 8, and grade 11 general, and fifteenth at grade 11 vocation, in the middle group of countries around the EU average (see 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)
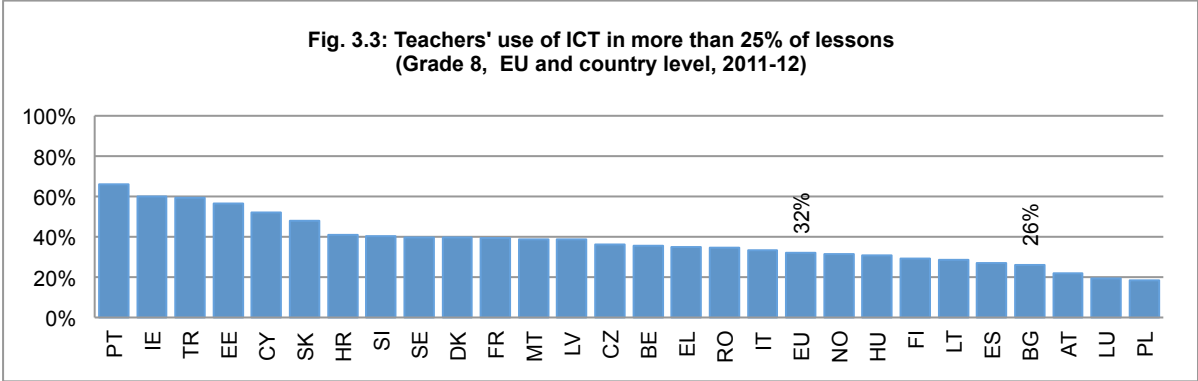
As regards teachers' use of ICT (Section 3 of the main report), relatively few teachers in Bulgaria have been using ICT in lessons for more than six years (main report, fig 3.2

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 of their own laptop or mobile phone. In Bulgaria student use of computers in class is above the EU mean at all grades, as is students' use of their own laptop. Mobile phone usage is above the EU mean at all grades except grade 11 vocational where it is close to the average.

Fig. 3.3: Percentages of students using ICT equipment in class for learning, at least once a week (Bulgaria and EU, 2011-12)
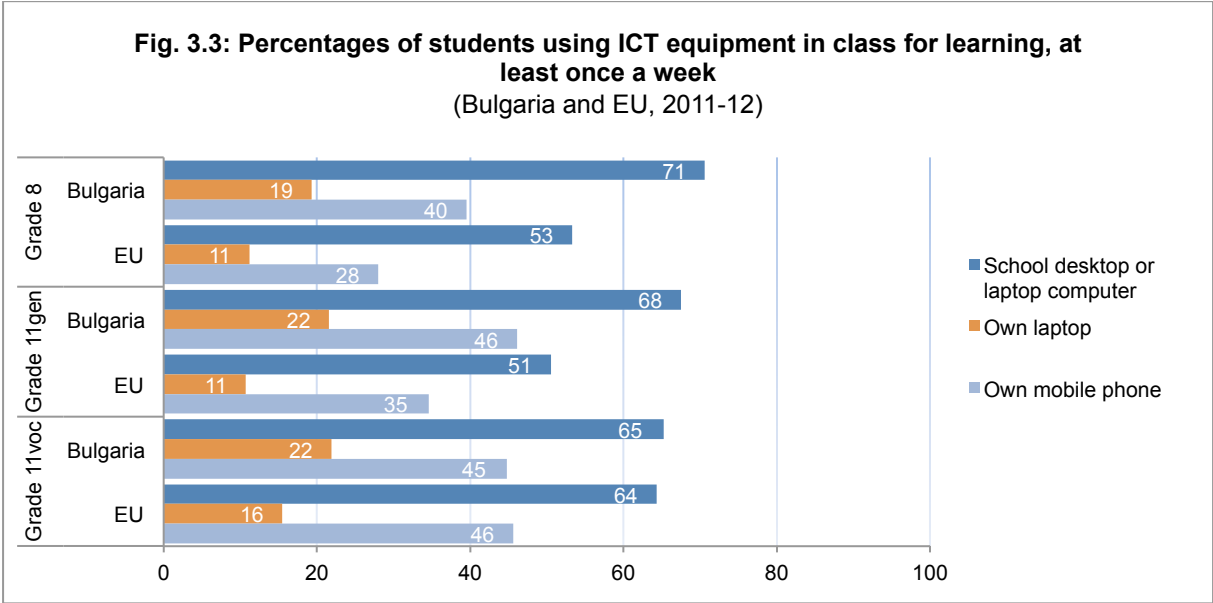
At grade 8 students' reported use of school computers is, somewhat remarkably, the highest in Europe, with over 70% saying they use them at least once a week (fig. 3.5). Relatively high use is also the case at grade 11 general, where Bulgaria is ranked seventh, although closer to the EU average a grade 11 vocational with 65% of students reporting using a school desktop/laptop (see main report fig. 2.5).

Fig. 3.5 Use of school desktop/laptop for learning purposes at least weekly
(% students, Grade 8, country and EU level, 2011-12)
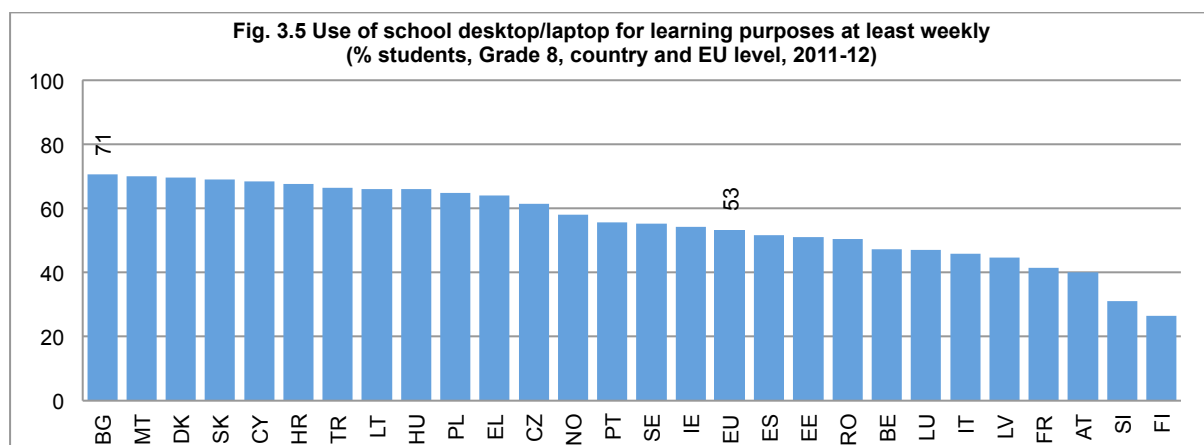
Compared to other countries at grade 8 (fig.3.6), students in Bulgaria are in the middle group of countries as users of their own mobile phone, ranked thirteenth, with heavy use of their own laptop in school compared to other countries (ranked third). At grade 11 general Bulgaria is ninth in students use of their own mobiles and second in their use of laptops, while at grade 11 vocational they are in the middle group for mobile use, just below the EU average, and in the top ten of countries regarding use of their own laptops (see main report fig 2.5).

Fig. 3.6 Use of own mobile phone or laptop for learning purposes at least weekly
(% students Grade 8, country and EU level, 2011-12)
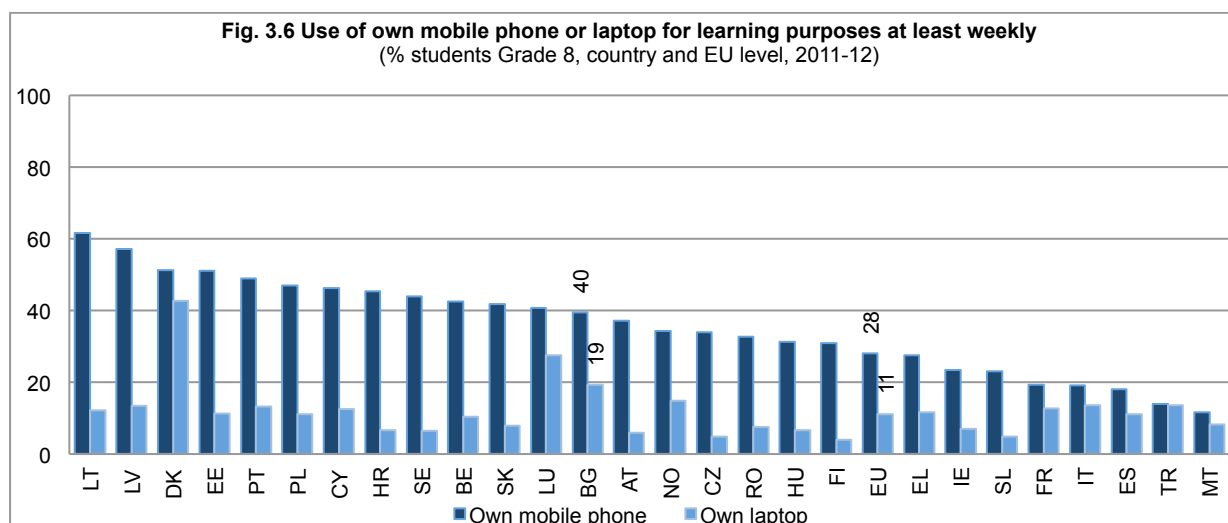
Students report using interactive whiteboards less frequently than the EU average at all grades, in the bottom eight group of countries for this measure.

Concerning students' ICT-based activities during lessons, Bulgaria is among the leading countries as measured by frequency of use (main report, fig. 3.8) at grade 8 but lower in ranking at other grades.

4. DIGITAL CONFIDENCE

TEACHERS

In Bulgaria teachers' confidence in their operational skills with ICT is close to the EU mean at all grades (close to 'somewhat') and in their social media skills is also close to the EU mean (between 'a little' and 'somewhat') 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'; Bulgaria and EU; 2011-12)

Fig. 4.1a: grade 4

	Bulgaria	EU
Social media skills	2.44	2.41
Operational skills	2.98	2.98

Fig. 4.1b: grade 8

	Bulgaria	EU
Social media skills	2.27	2.37
Operational skills	2.93	3

Fig. 4.1c: grade 11 gen.

	Bulgaria	EU
Social media skills	2.27	2.38
Operational skills	2.9	3.01

Fig. 4.1d: grade 11 voc.

	Bulgaria	EU
Social media skills	2.57	2.51
Operational skills	3.19	3.16
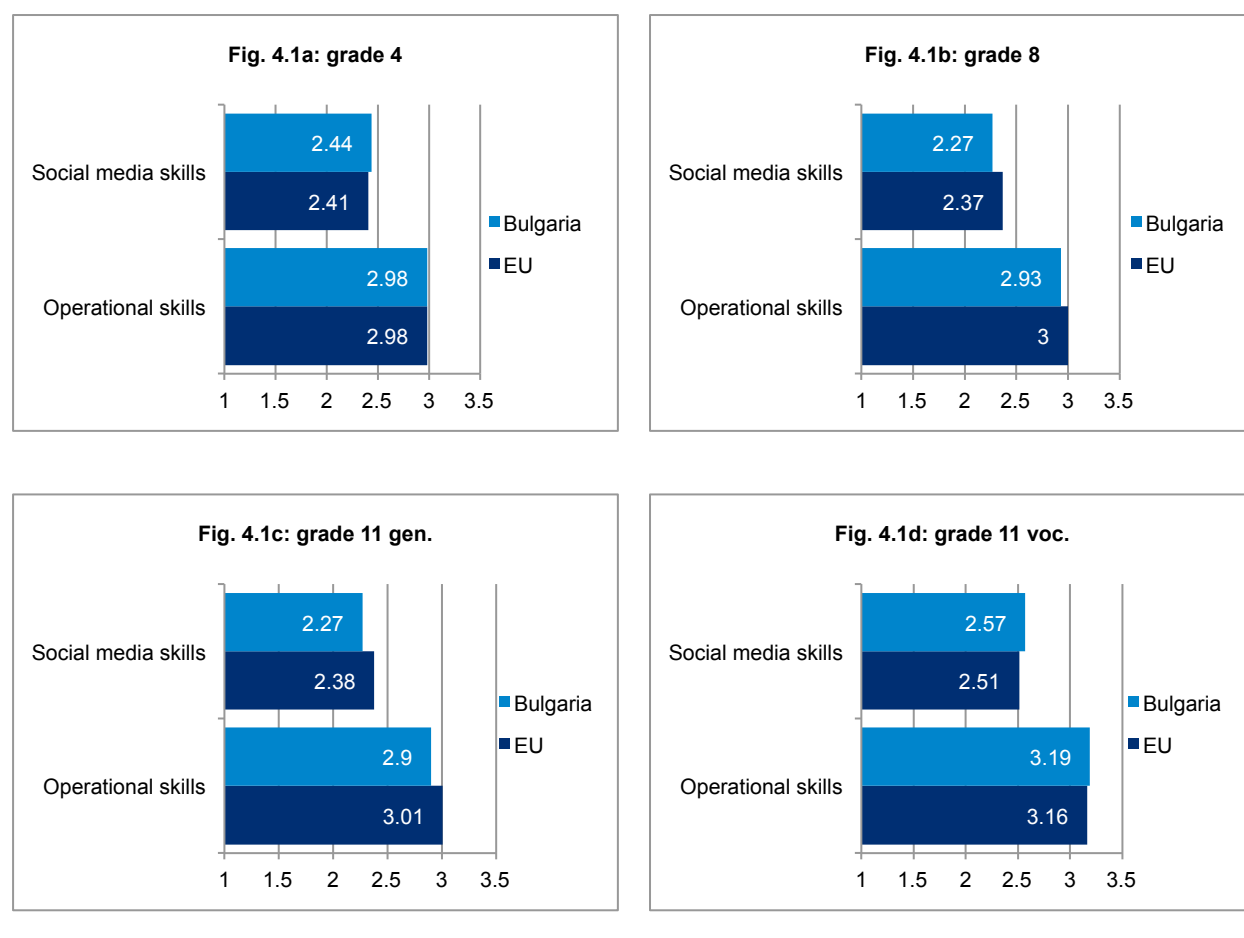
Comparing confidence levels at grade 8, teachers' confidence in their operational skills Bulgaria ranks in the middle group of countries just below the EU average (fig. 4.1e). At other grades Bulgaria is ranked in the top ten countries at grade 11 vocational, in the middle group of countries at grade 4 (on the EU average) and sixth from bottom at grade 11 general (see main report, fig. 4.13).

Fig. 4.1e Teachers' confidence in their operational skills
(Grade 8, country and EU level, 2011-12)
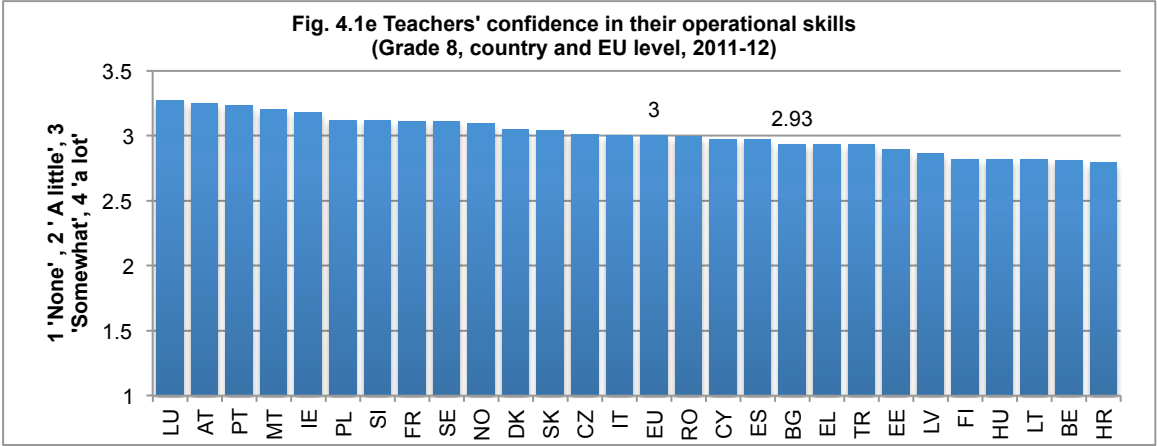
As regards social media confidence Bulgaria is also in the middle ranking group of countries at grade 8 (fig 4.1f), as is the case at grade 4, in the lowest ten group of countries at grade 11 general, and the top ten at grade 11 vocational (see main report 4.14).

Fig. 4.1f Teachers' confidence in their social media skills
(Grade 8, country and EU level, 2011-12)
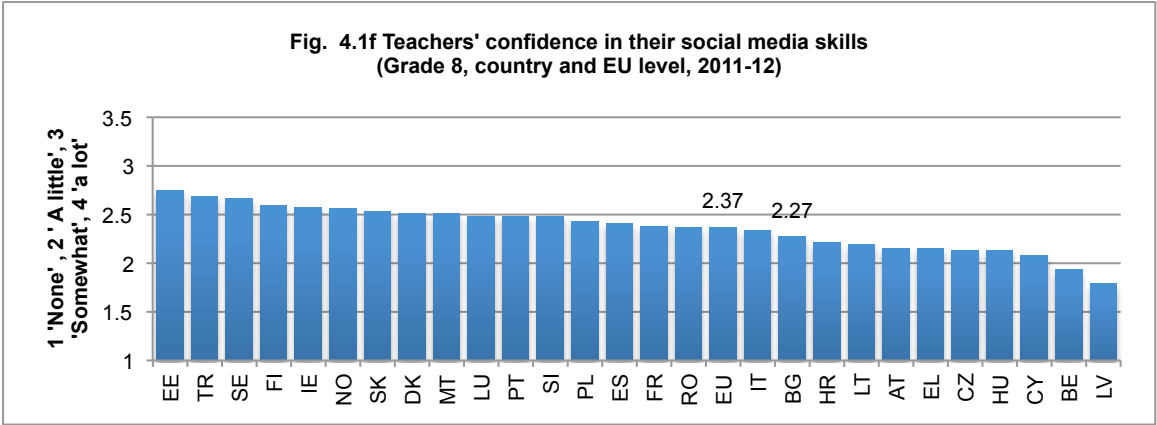
In Bulgaria students' confidence in their social media and operational ICT skills is below the EU mean (close to 'somewhat') in all grades.

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'; Bulgaria and EU; 2011-12)

Fig. 4.2a: grade 8

	Bulgaria	EU
Social media skills	2.35	2.41
Operational skills	2.53	2.63
Responsible internet use	2.53	2.58
Safe internet use	2.57	2.98

Fig. 4.2b: grade 11 gen.

	Bulgaria	EU
Social media skills	2.73	2.78
Operational skills	2.87	2.88
Responsible internet use	2.9	2.93
Safe internet use	2.91	3.16

Fig. 4.2c: grade 11 voc.

	Bulgaria	EU
Social media skills	2.53	2.55
Operational skills	2.75	2.78
Responsible internet use	2.76	2.75
Safe internet use	2.74	2.98
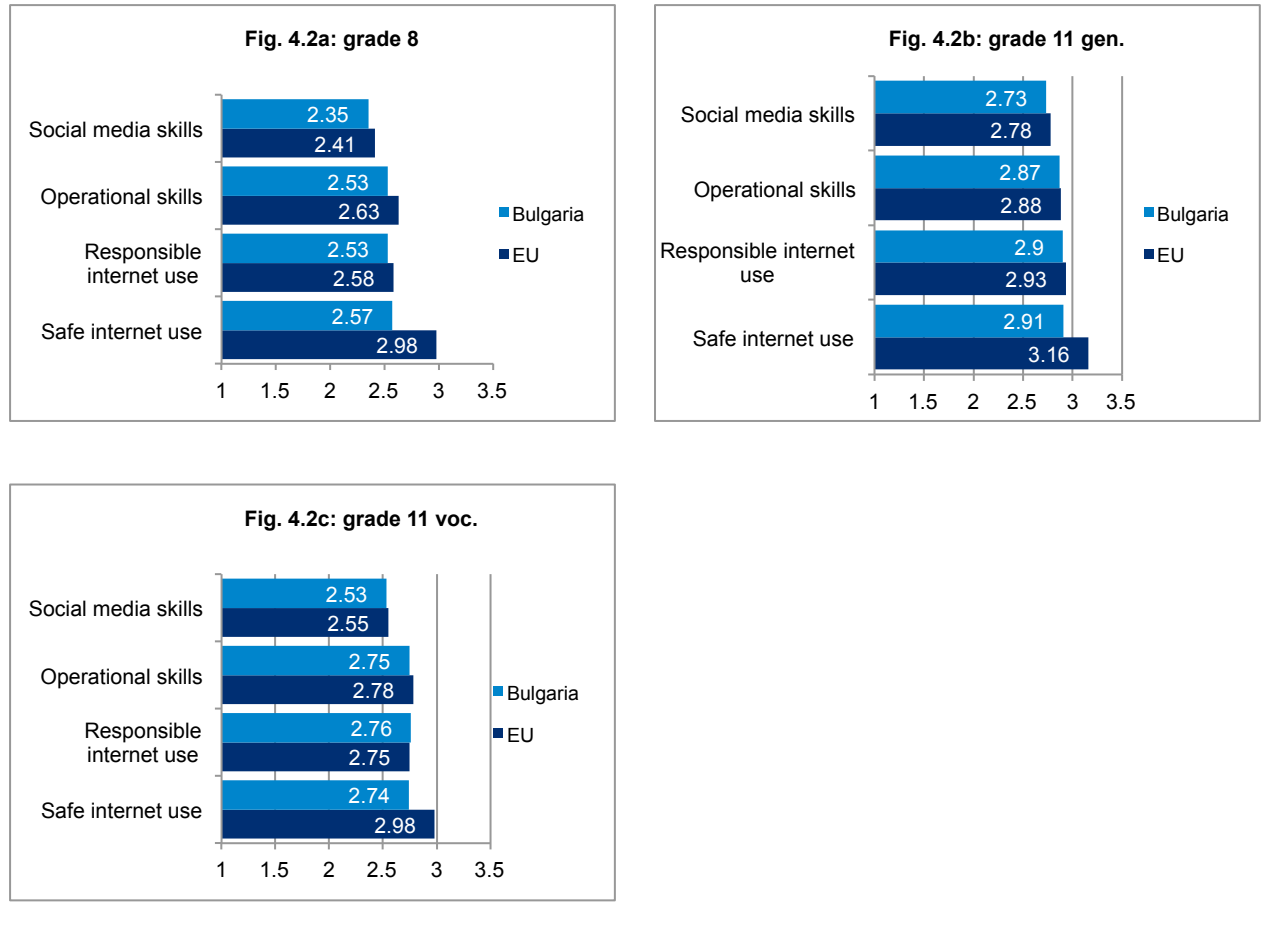
Confidence in operational skills is lower than the EU mean amongst grade 8 students, ranked eighth from bottom (fig. 4.2d), eleventh at grade 11 vocational and fifteenth at grade 11 general and in both cases close to the EU average (see main report fig. 4.18).

Fig. 4.2d Students" confidence in their operational skills
(Grade 8, country and EU level, 2011-12)
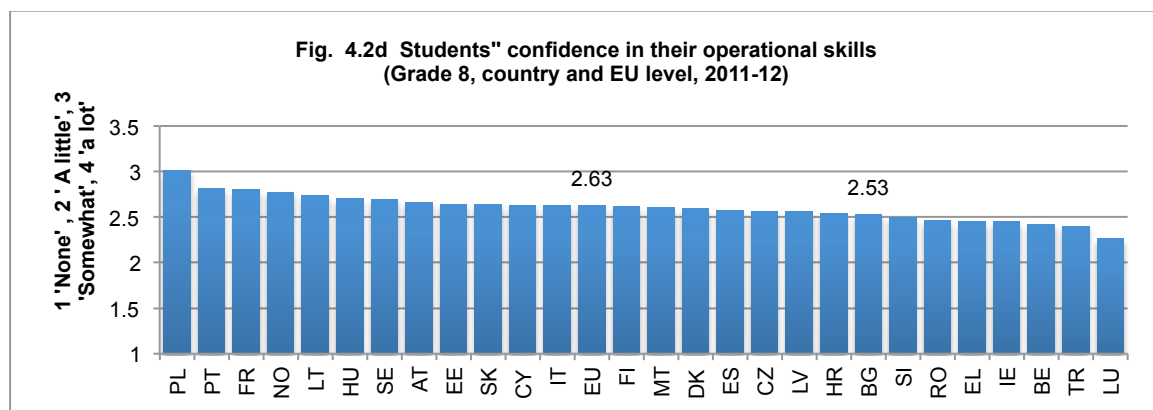
Bulgaria is in the middle-ranking group of countries (below the EU average) in social media competencies at all grades, ranked seventeenth at grade 8 (fig 4.2e), and eleventh at grade 11 vocational (see main report fig. 4.19).

Fig. 4.2e   Students" confidence in their social media skills (Grade 8, country and EU level, 2011-12)
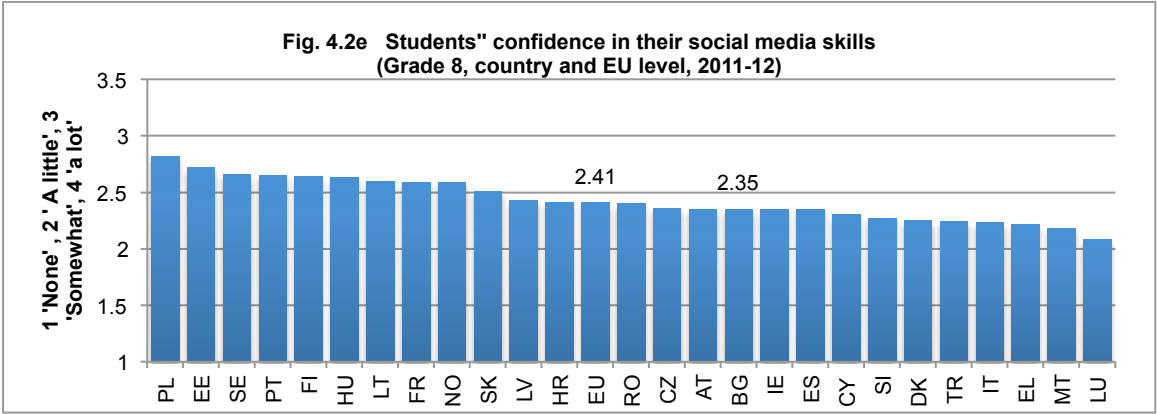
At grade 8 and 11 general students are second from bottom in terms of confidence to use the internet safely, and in lowest ten countries at grade 11 vocational. In terms of confidence to use the internet responsibly students at grade 11 vocational rank ninth, and are in the middle ranking group of countries at other grades, close to the EU average (see main report fig 4.16, 4.17).

5. PROFESSIONAL DEVELOPMENT

TIME SPENT ON TRAINING

All students at grade 11 vocational in Bulgaria are taught by teachers who have invested more than 6 days in professional development activities during the past two years, above the EU average, but considerably fewer at grade 8, and below the average at other grades.

In the Bulgaria more students are in schools where teachers have spent between 1 and 3 days on ICT professional development activities, above the EU mean. Those who have spent no time are above the EU mean at all grades, except at grade 4 which is slightly below.
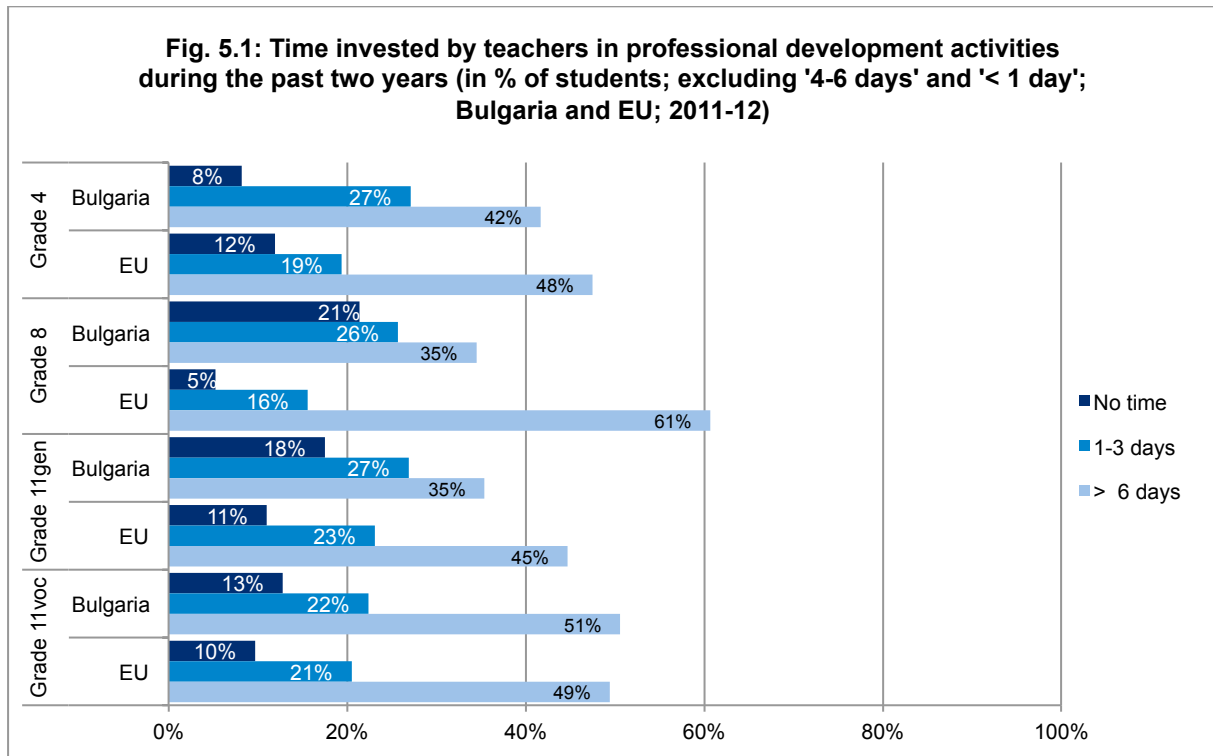
Fig. 5.1: Time invested by teachers in professional development activities during the past two years (in % of students; excluding '4-6 days' and '< 1 day'; Bulgaria and EU; 2011-12)

For further details please refer to Section 4 of the survey report.

As Fig. 5.2 below shows, Bulgaria is positioned above the EU mean at grade 4 and grade 11 general, when considering the percentage of students taught by teachers who have recently undergone ICT training provided by school staff, higher at all grades where they have undertaken personal training, but lower at all grades, for 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; Bulgaria and EU; 2011-12)

Fig. 5.2a: grade 4

Participation in online communities	Bulgaria 36% / EU 25%
ICT training provided by school staff	Bulgaria 55% / EU 40%
Personal learning about ICT in your own time	Bulgaria 92% / EU 70%

Fig. 5.2b: grade 8

Participation in online communities	Bulgaria 23% / EU 31%
ICT training provided by school staff	Bulgaria 42% / EU 51%
Personal learning about ICT in your own time	Bulgaria 87% / EU 74%

Fig. 5.2c: grade 11 gen.

Participation in online communities	Bulgaria 23% / EU 28%
ICT training provided by school staff	Bulgaria 46% / EU 44%
Personal learning about ICT in your own time	Bulgaria 87% / EU 72%

Fig. 5.2d: grade 11 voc.

Participation in online communities	Bulgaria 27% / EU 28%
ICT training provided by school staff	Bulgaria 38% / EU 41%
Personal learning about ICT in your own time	Bulgaria 89% / EU 71%

Fig. 5.2e shows that grade 8 teachers in Bulgaria 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)**
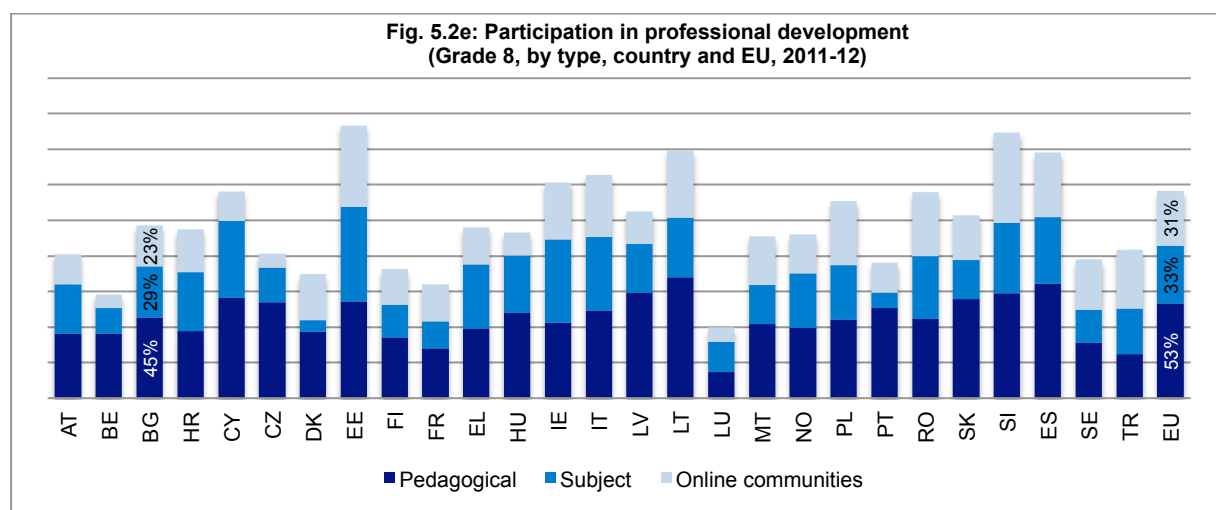
In Bulgaria at all grades percentages of students taught by teachers for whom ICT training is compulsory are among the highest in the EU (main report, fig. 4.2), in the leading group of countries. As regards involvement in personal learning about ICT in their own time (main report, fig. 4.4), percentages (in the range 87% to 92%) place Bulgaria among the top five countries at all grades, and first at grade 4. The percentage of students taught by teachers participating in training provided by school staff in Bulgaria is in the bottom group of countries at grade 8 and grade 11 vocational but in the middle group of countries at other grades (main report, fig.4.5).

Between 8% and 21% 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 Bulgaria in the bottom group of countries at all grades on this indicator except grade 4 where it is in the middle group of countries.

6. SCHOOL SUPPORT MEASURES

In general students in Bulgaria are in schools where above EU averages of ICT strategies are implemented (main report, fig. 5.3), placing Bulgaria in leading group of countries at all grades. There are EU average percentages of students in Bulgarian schools with strategies to support teacher collaboration (main report, fig. 5.7). On the other hand Bulgaria is in the leading group of countries ranked regarding strategies about responsible internet and social media use (main report fig. 5.10), ranked third at grade 11 general.

There are generally below average percentages of students in schools with change management programmes at all grades (main report, fig. 5.14), with Bulgaria in the lower group of countries, although in the middle group of countries at grade 4.

ICT COORDINATOR

In Bulgaria, compared to the situation at EU level (see Fig. 6.1), fewer students are in schools where ICT coordinators are provided at all grades. The majority of students are in schools that employ full time ICT coordinators who also provide pedagogical support, at all grades, considerably above the EU mean particularly at grade 11 vocational.

Fig. 6.1: Percentages of students in a school with ICT coordinator (all grades, Bulgaria and EU, 2011-12)
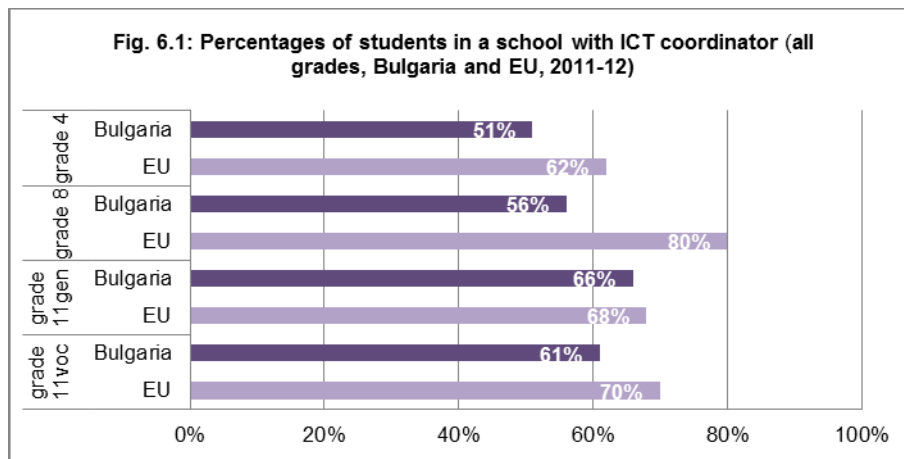
Students are in schools that employ full time ICT coordinators considerably below the EU mean at all grades. Compared to the situation at EU level (see fig 6.2) ICT coordinators in Bulgaria are less likely to be rewarded for their support at all grades. Percentages of struggle in schools where ICT coordinators also provide pedagogical support are above the EU level at grade 11, notably more so at grade 11 vocational where the majority of students are also in schools with a full time ICT coordinator.

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, Bulgaria and EU, 2011-12)
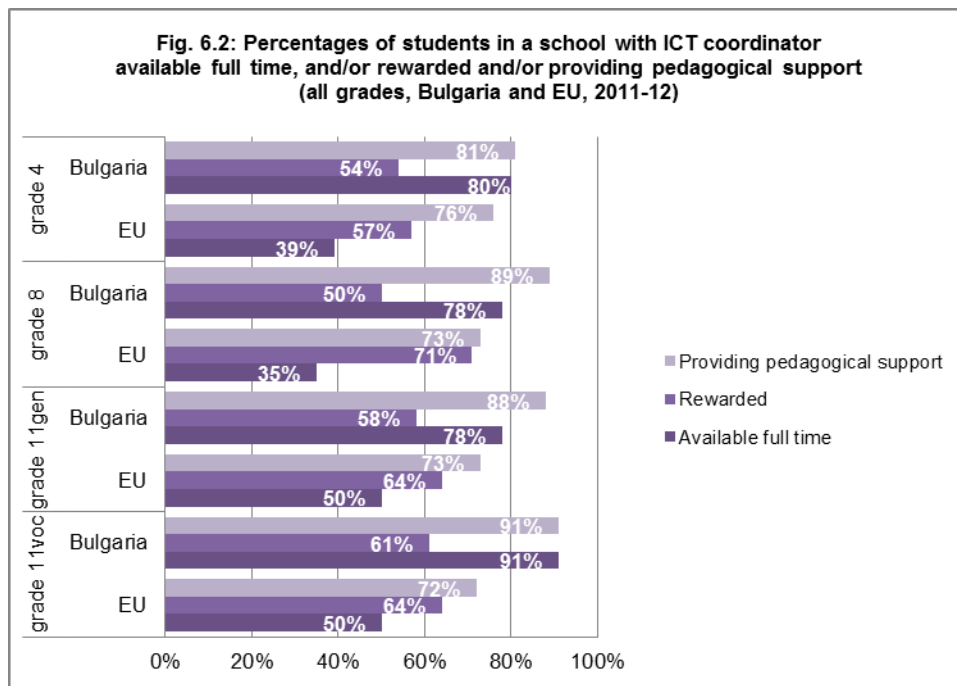
For further details please refer to Section 5 of the survey report.

INCENTIVES

In Bulgaria most students are in schools where there are forms of incentives or rewards for using ICT, above the EU average at all grades, in the majority of categories, and considerably above for financial incentives or rewards.

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

Fig. 6.3b: grade 8

Fig. 6.3c: grade 11 gen.

	Bulgaria	EU
Additional training hours	39%	37%
Additional equipment	43%	38%
Competitions and prizes	46%	18%
Financial incentives	68%	14%
Reduction of teaching hours	2%	2%

Fig. 6.3d: grade 11 voc.

	Bulgaria	EU
Additional training hours	34%	42%
Additional equipment	49%	43%
Competitions and prizes	49%	18%
Financial incentives	64%	20%
Reduction of teaching hours	4%	4%

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

7: CLUSTERS

THE DIGITALLY SUPPORTIVE SCHOOL

Analysis of the data gathered in 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 Bulgaria, there are high levels of students in digitally supportive schools at all levels, especially at grade 4. The relatively low percentages of students in schools with weak policy and weak support and low levels of weak policy and strong support at all grades (except grade 8) seems to suggest that the issue is more related to levels of resourcing rather than having policies in place.

Fig. A: Percentages of students by school type in terms of policy and support (all grades, Bulgaria and EU, 2011-12)
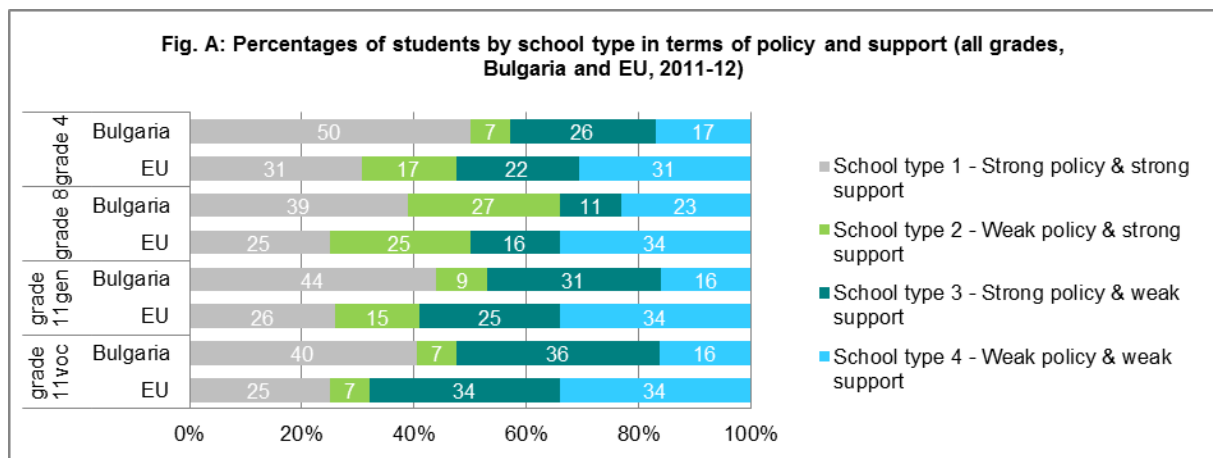
At grade 8 Bulgaria is in the leading group of countries with strong policy and strong support (type 1), with more than two thirds of students in schools with strong support (type 1 and type 2). It is a similar story at grade 4 and 11 (main report fig. 8.1), although at grade 11 more than 50% of students are in schools with weak support (School type 3 and 4).

Fig. 7.1: Digitally supportive schools
(% students, grade 8, EU and country level, 2011-12)
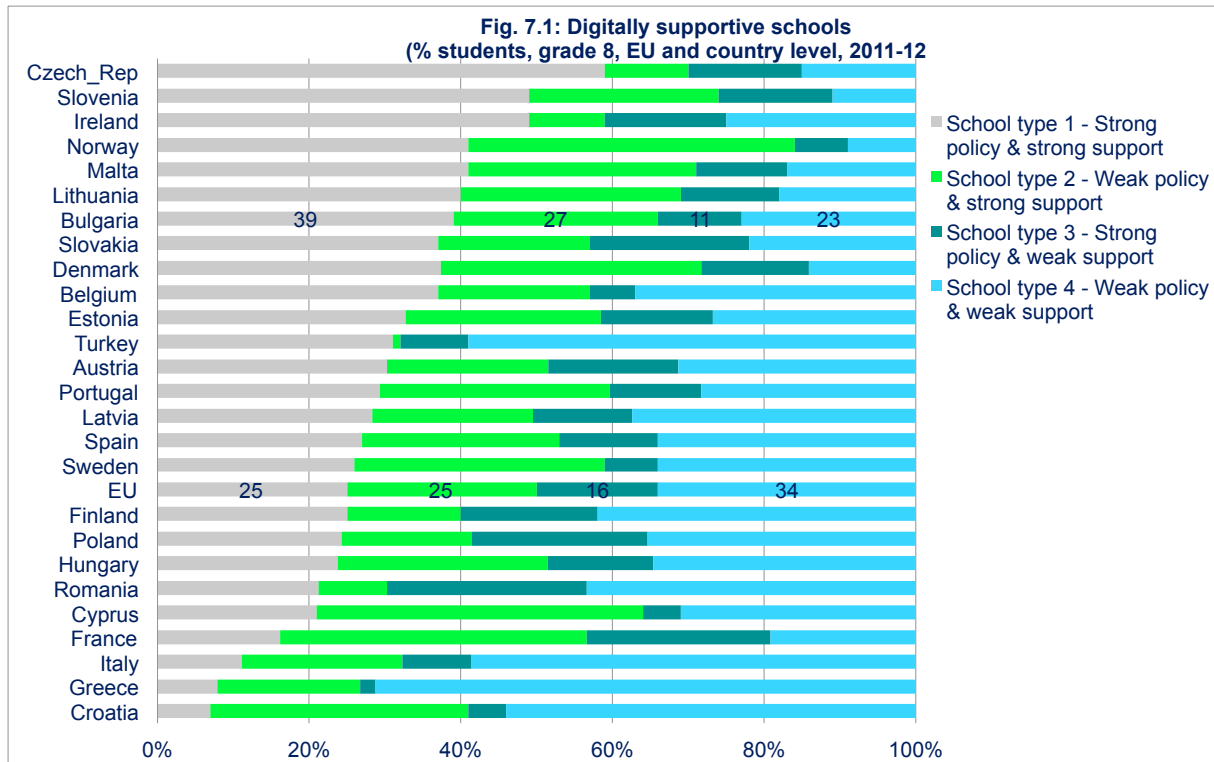
DIGITALLY CONFIDENT AND SUPPORTIVE TEACHERS

Percentages of students taught by *digitally supportive teachers* (i.e. teachers with high confidence/attitude as well as high access to ICT and low obstacles encountered) in Bulgaria, compared to other countries, are close to the EU averages at all grades except for grade 4 where it is higher (see Fig. B).

Fig. B: Percentages of students by type of T&L conditions (teachers' confidence/attitude & access/obstacles) (all grades, Bulgaria and EU, 2011-12)
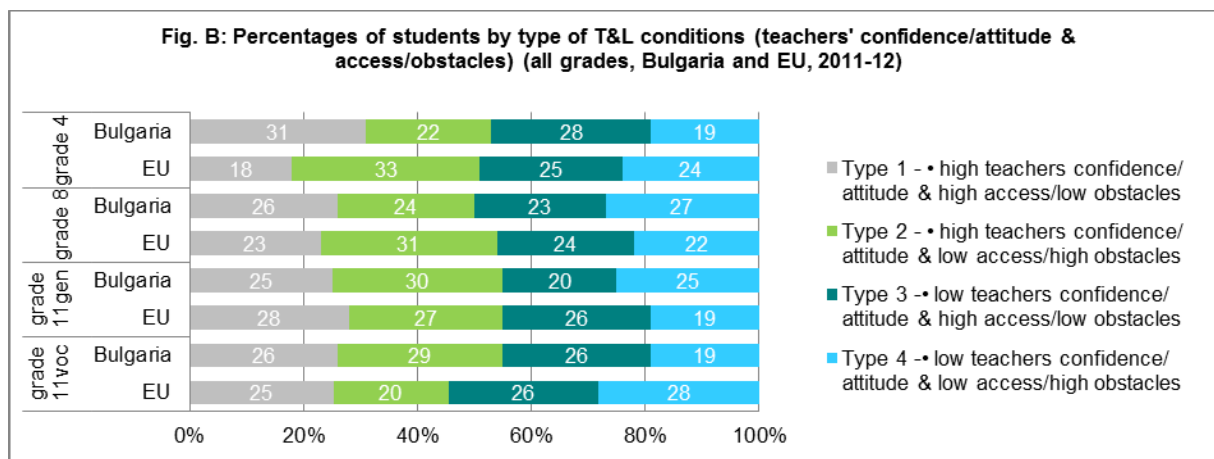
A high percentage of students at grade 8 compared to other countries is in schools with type 1 teachers (fig. 7.2), and Bulgaria ranks either compared to other countries. At grade 4 Bulgaria ranks fifth, and is in the middle grouping of countries at grade 11 (see main report fig. 8.3)

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

Legend:
- Type 1 - • high teachers confidence/ attitude & high access/low obstacles
- Type 2 - • high teachers confidence/ attitude & low access/high obstacles
- Type 3 - • low teachers confidence/ attitude & high access/low obstacles
- Type 4 - • low teachers confidence/ attitude & low access/high obstacles
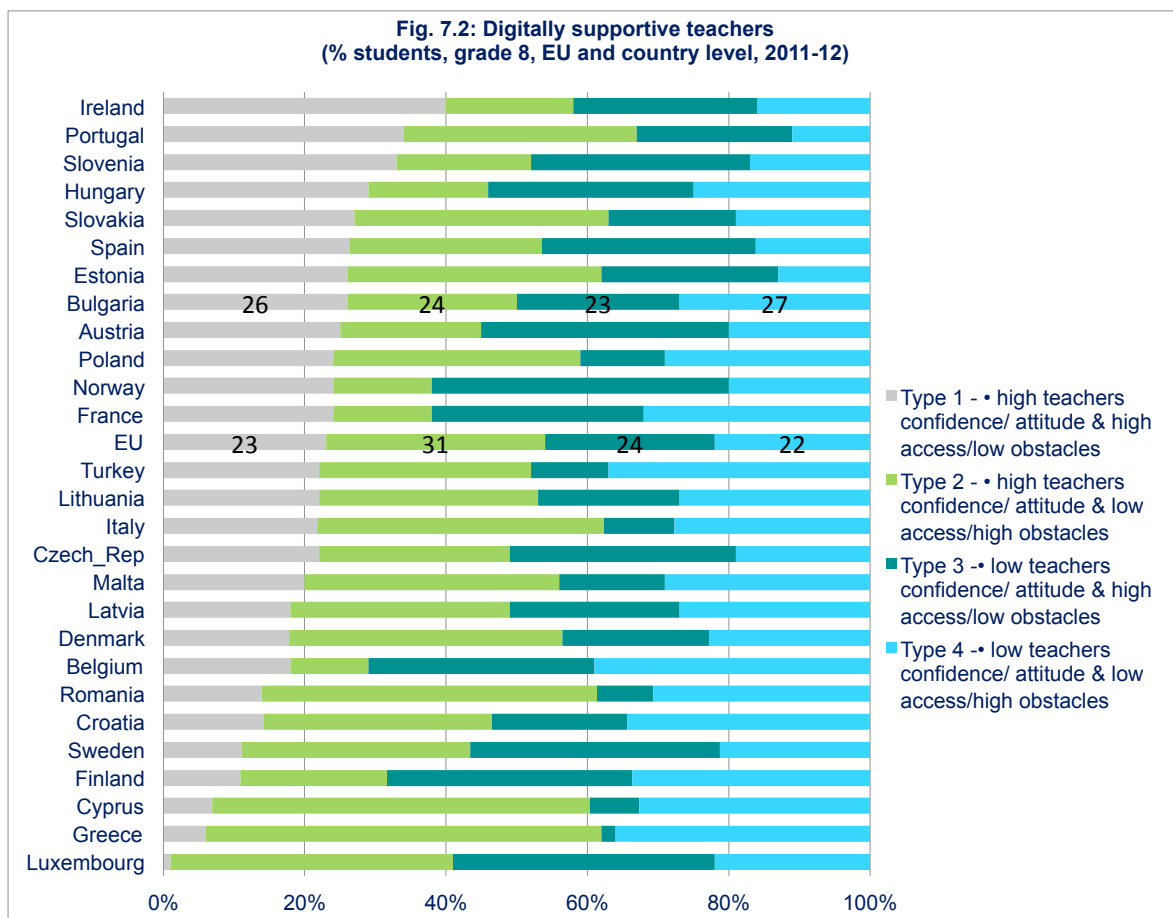
THE DIGITALLY SUPPORTIVE STUDENT

A *digitally supportive student* being defined as having high ICT access and use at school and at home, the percentages of such students in Bulgaria are also above EU means, but higher percentages (around 25%) have low access both at home and at schools.

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

Legend:
- Student profile 1 - High access/use at school & home
- Student profile 2 - Low access/use at school & high access/use at home
- student profile 3 - Low acess at school & home
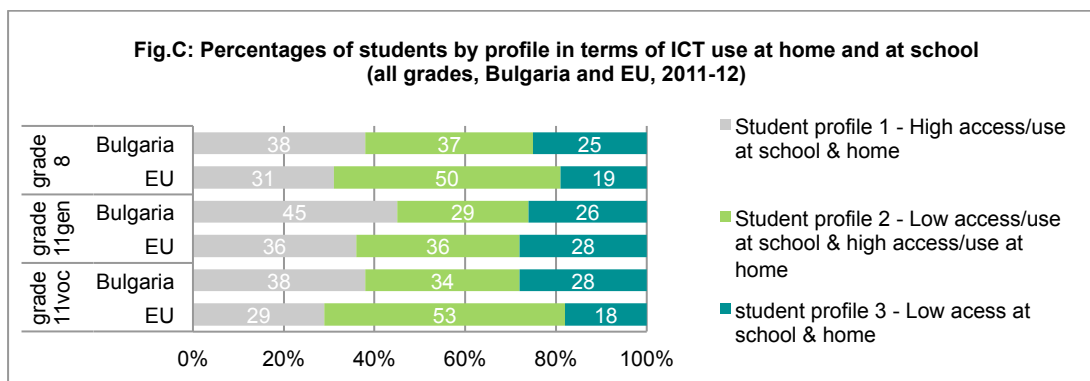
On this measure, percentages of type 1 grade 8 students are among leading group of countries (fig. 7.3), but are nearer the middle group of countries at grade 11 (main report fig. 8.5).

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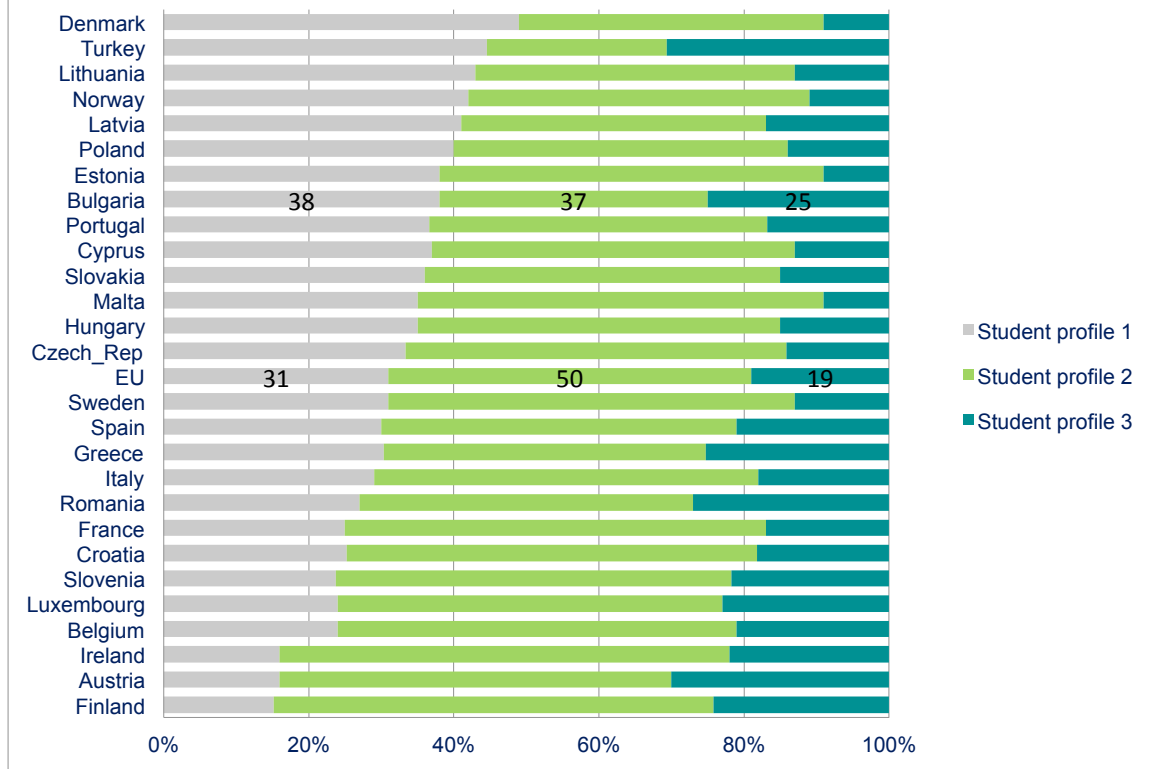
THE DIGITALLY EQUIPPED SCHOOL

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 Bulgaria, only at grade 11 vocational are above EU average percentages of students in type 1 schools.

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

		Type 1	Type 2	Type 3
Grade 4	Bulgaria	14	68	19
	EU	37	48	15
Grade 8	Bulgaria	10	77	14
	EU	24	68	8
Grade 11 gen	Bulgaria	51	37	13
	EU	55	39	5
Grade 11 voc	Bulgaria	57	35	8
	EU	50	44	6

Type 1: Highly digitally equipped schools

Type 2: Partially digitally equipped schools

Type 3: Schools with low equipment levels, slow (less than 10mbps) or no broadband, and no connectedness

Fig. 7.4 shows how Bulgaria compares with other countries at grade 8 on this measure. A lower number of students are in type 1 schools compared to other countries and large numbers are in type 2 relative to other countries. Bulgaria ranks in the middle group of countries at grade 11, and in the lowest group) at grade 4 (main report, fig. 1.13).

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

Finland
Sweden
Denmark
Norway
France
Malta
Portugal
Latvia
Spain
Estonia
EU 24 68 8
Austria
Belgium
Ireland
Lithuania
Bulgaria 10 77 14
Croatia
Cyprus
Czech_Rep
Greece
Poland
Hungary
Slovenia
Italy
Romania
Slovakia
Turkey

Type 1
Type 2
Type 3
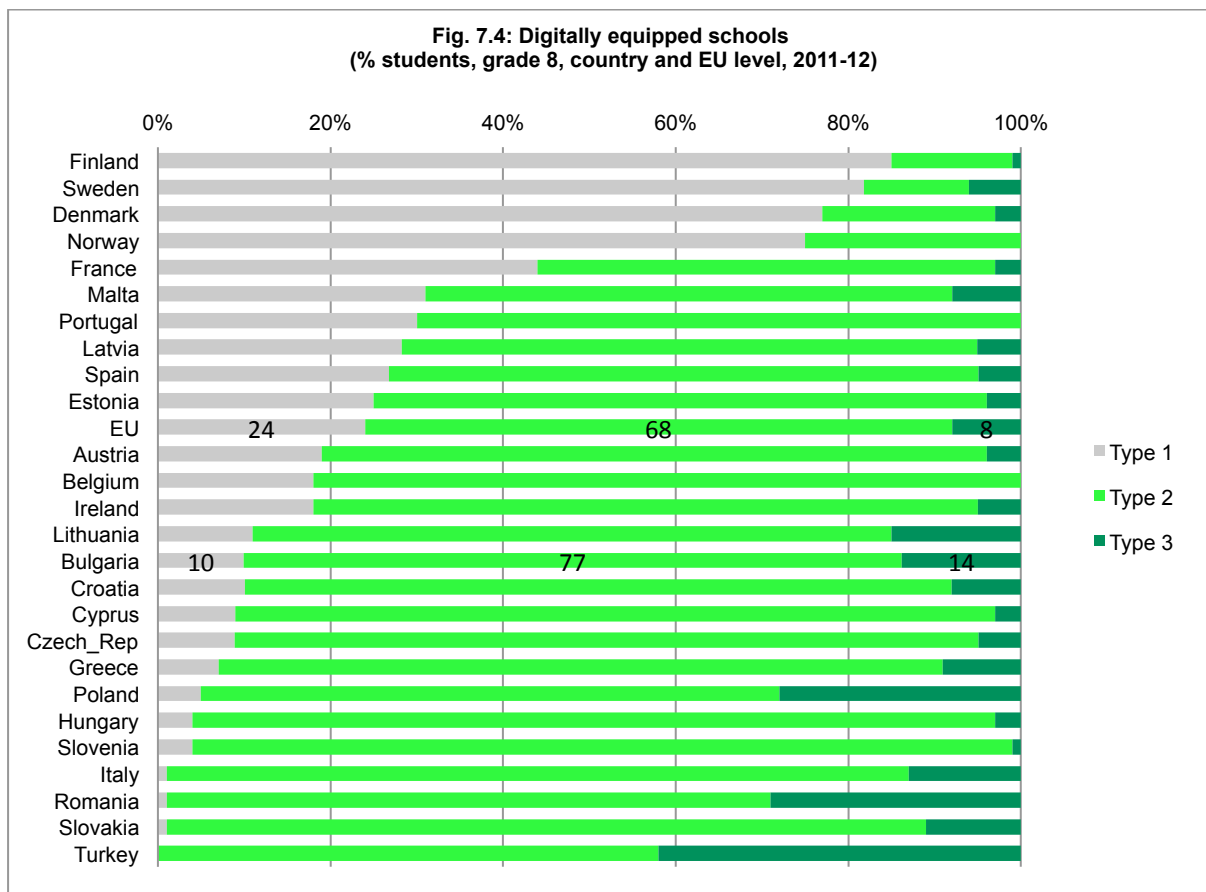
CONCLUSION

Students in Bulgaria enjoy higher than EU average broadband speeds but there are more students per computer and higher than average percentages in schools that are 'unconnected'. Nevertheless frequency of use of ICT equipment by teachers is close to EU means and by students is generally above that of other countries, particularly as regards using their own mobile phone for learning in class. Teachers' confidence levels in ICT skills are around the EU average, and students' slightly below. There have been relatively high levels of ICT professional development for teachers and, where in place, pedagogical as well as technical support from ICT coordinators in school. This support is no doubt reflected in the high ICT use in class.

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.

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
Bulgaria	6.5	(0.3)	9.4	(0.4)	8.7	(0.5)	15.6	(0.8)
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	From5to10	SE4	From10to30	SE5
1. Grade4	Bulgaria	3.9%	(1.6)	6.4%	(2.1)	5.8%	(2.0)	25.4%	(3.6)	22.5%	(3.5)
	EU	8.0%	(1.3)	16.5%	(2.3)	21.4%	(2.4)	22.1%	(2.2)	19.5%	(2.2)
2. Grade8	Bulgaria	4.5%	(1.6)	10.1%	(2.6)	10.5%	(2.4)	19.6%	(3.1)	21.1%	(3.1)
	EU	5.0%	(0.8)	9.6%	(1.3)	19.1%	(2.3)	27.7%	(2.4)	24.8%	(2.3)
3. Grade11gen	Bulgaria	4.6%	(2.1)	5.3%	(2.2)	5.9%	(2.2)	17.2%	(3.6)	26.3%	(4.3)
	EU	3.7%	(1.3)	6.2%	(0.8)	18.0%	(2.8)	23.2%	(3.0)	25.4%	(3.9)
4. Grade11voc	Bulgaria	3.9%	(1.7)	3.1%	(1.6)	7.1%	(2.3)	20.9%	(3.7)	38.4%	(4.4)
	EU	6.5%	(1.8)	6.2%	(1.3)	15.2%	(3.0)	21.2%	(2.6)	24.2%	(4.6)

From30to100	SE6	MoreThan100	SE7
25.5%	(3.7)	10.6%	(2.6)
8.6%	(1.4)	4.0%	(1.3)
28.3%	(3.6)	6.1%	(1.8)
8.6%	(1.6)	5.2%	(1.2)
37.7%	(4.6)	3.0%	(1.5)
13.3%	(2.6)	10.3%	(8.0)
23.3%	(3.8)	3.4%	(1.7)
15.7%	(7.1)	10.9%	(5.3)

Fig. 2.5
Connectedness

Level	COUNTRY	SchWebsite	SE1	VLE	SE2	NoConnect	SE3
1. Grade4	Bulgaria	60.6%	(4.1)	24.0%	(3.6)	20.4%	(3.5)
	EU	69.7%	(3.6)	26.8%	(2.0)	15.9%	(2.2)
2. Grade8	Bulgaria	72.3%	(3.5)	21.7%	(3.3)	14.2%	(2.7)
	EU	86.0%	(1.6)	61.4%	(3.0)	8.4%	(1.2)

Level	COUNTRY	SchWebsite	SE1	VLE	SE2	NoConnect	SE3
3. Grade11gen	Bulgaria	81.7%	(3.6)	20.6%	(3.8)	12.9%	(3.2)
	EU	91.7%	(3.1)	61.0%	(7.9)	7.0%	(2.9)
4. Grade11voc	Bulgaria	86.6%	(3.1)	25.9%	(4.1)	7.3%	(2.4)
	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	Bulgaria	6.3%	(2.0)	5.2%	(1.8)	16.1%	(3.0)	21.9%	(3.4)	18.7%	(3.1)
	EU	3.0%	(0.4)	10.0%	(2.4)	13.9%	(1.4)	18.0%	(1.8)	19.1%	(2.1)
2. Grade8	Bulgaria	3.1%	(0.8)	5.3%	(1.3)	14.2%	(1.7)	18.3%	(1.9)	22.6%	(2.1)
	EU	7.4%	(1.0)	6.8%	(0.8)	14.7%	(0.9)	20.7%	(1.2)	18.9%	(1.4)
3. Grade11gen	Bulgaria	6.8%	(1.6)	5.0%	(1.3)	10.3%	(1.7)	15.0%	(2.1)	23.5%	(2.6)
	EU	7.0%	(1.0)	8.1%	(1.4)	14.9%	(1.4)	22.9%	(3.8)	17.1%	(1.8)
4. Grade11voc	Bulgaria	18.0%	(2.7)	11.3%	(1.8)	17.1%	(2.4)	15.6%	(1.9)	12.6%	(2.0)
	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
8.0%	(2.2)	10.5%	(2.4)	13.3%	(2.8)
20.7%	(2.7)	8.7%	(1.4)	6.7%	(1.4)
12.2%	(1.5)	10.5%	(1.6)	13.8%	(1.9)
14.4%	(1.0)	11.0%	(1.0)	6.1%	(0.8)
15.2%	(1.9)	12.2%	(2.1)	11.9%	(1.9)
14.0%	(1.5)	10.3%	(1.4)	5.7%	(0.9)
9.6%	(1.8)	4.7%	(1.2)	11.1%	(1.9)
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
Bulgaria	31.9%	(4.0)	26.2%	(2.5)	25.2%	(2.8)	52.3%	(3.3)
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	Bulgaria	39.5	(1.7)	19.3	(1.2)	70.6	(1.9)
	EU	28.0	(0.8)	11.2	(0.7)	53.3	(1.1)
2. Grade11gen	Bulgaria	46.1	(1.7)	21.6	(1.3)	67.5	(2.2)
	EU	34.6	(1.3)	10.7	(1.1)	50.5	(1.5)

Level	Country	OwnMobPhone	SE1	OwnLaptop	SE2	SchoolComputer	SE3
3. Grade11voc	Bulgaria	44.8	(1.7)	21.9	(1.3)	65.2	(2.3)
	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	Bulgaria	2.44	(0.07)	2.98	(0.06)
	EU	2.41	(0.03)	2.98	(0.02)
2. Grade8	Bulgaria	2.27	(0.05)	2.93	(0.04)
	EU	2.37	(0.04)	3.00	(0.03)
3. Grade11gen	Bulgaria	2.27	(0.06)	2.90	(0.04)
	EU	2.38	(0.07)	3.01	(0.03)
4. Grade11voc	Bulgaria	2.57	(0.05)	3.19	(0.04)
	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	Bulgaria	2.35	(0.05)	2.53	(0.05)	2.53	(0.05)	2.57	(0.05)
	EU	2.41	(0.02)	2.63	(0.02)	2.58	(0.02)	2.98	(0.02)
2. Grade11gen	Bulgaria	2.73	(0.03)	2.87	(0.03)	2.90	(0.03)	2.91	(0.03)
	EU	2.78	(0.02)	2.88	(0.01)	2.93	(0.03)	3.16	(0.02)
3. Grade11voc	Bulgaria	2.53	(0.04)	2.75	(0.04)	2.76	(0.04)	2.74	(0.04)
	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	Bulgaria	41.7%	(4.0)	27.1%	(3.5)	8.2%	(2.1)
	EU	47.5%	(4.2)	19.4%	(3.0)	11.9%	(2.4)
2. Grade8	Bulgaria	34.5%	(2.6)	25.7%	(2.1)	21.4%	(2.1)
	EU	60.7%	(1.6)	15.6%	(1.0)	5.2%	(0.5)
3. Grade11gen	Bulgaria	35.4%	(3.0)	26.9%	(2.6)	17.5%	(2.4)
	EU	44.7%	(5.2)	23.1%	(3.4)	11.0%	(1.6)
4. Grade11voc	Bulgaria	50.6%	(3.2)	22.4%	(2.5)	12.8%	(1.9)
	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

Level	COUNTRY	OnlineComm	SE1	ICTtraining	SE2	PersonalLearning	SE3
1. Grade4	Bulgaria	35.6%	(4.0)	54.5%	(4.1)	92.2%	(2.1)
	EU	25.4%	(2.5)	40.3%	(3.2)	70.0%	(2.8)
2. Grade8	Bulgaria	22.9%	(2.1)	41.8%	(2.8)	87.0%	(1.7)
	EU	30.8%	(1.6)	50.5%	(1.7)	74.2%	(1.3)
3. Grade11gen	Bulgaria	23.0%	(2.6)	46.4%	(3.4)	86.6%	(1.8)
	EU	28.0%	(2.4)	43.5%	(2.2)	71.7%	(2.2)
4. Grade11voc	Bulgaria	27.2%	(2.7)	38.3%	(3.3)	88.6%	(1.8)
	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
Bulgaria	51.0%	(4.1)	55.5%	(3.9)	65.6%	(4.4)	60.5%	(4.4)
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	Bulgaria	79.8%	(4.6)	54.2%	(5.8)	81.0%	(4.5)
	EU	39.3%	(3.0)	56.5%	(3.0)	75.9%	(2.3)
2. Grade8	Bulgaria	77.8%	(4.5)	50.4%	(5.2)	88.8%	(3.2)
	EU	34.8%	(2.9)	70.6%	(2.4)	72.5%	(2.5)
3. Grade11gen	Bulgaria	78.0%	(4.8)	58.2%	(5.9)	88.2%	(3.8)
	EU	49.6%	(6.9)	63.6%	(7.7)	73.4%	(4.2)
4. Grade11voc	Bulgaria	90.5%	(3.5)	61.3%	(5.8)	90.6%	(3.4)
	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	Bulgaria	39.0%	(4.2)	37.3%	(4.1)	41.1%	(4.2)	63.3%	(4.1)	6.0%	(2.1)	25.0%	(3.9)
	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	Bulgaria	38.5%	(3.8)	39.6%	(3.8)	50.7%	(4.0)	66.4%	(3.8)	3.0%	(1.3)	31.4%	(4.0)
	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	Bulgaria	38.7%	(4.7)	42.7%	(4.8)	46.1%	(4.7)	68.0%	(4.4)	1.8%	(1.3)	22.3%	(4.2)
	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	Bulgaria	34.1%	(4.4)	49.1%	(4.6)	48.7%	(4.6)	64.0%	(4.3)	3.8%	(1.7)	40.3%	(4.7)
	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	Bulgaria	50	(4.16)	7	(2.04)	26	(3.65)	17	(3.16)
	EU	31	(2.70)	17	(3.17)	22	(2.53)	31	(2.98)
2. Grade8	Bulgaria	39	(3.85)	27	(3.46)	11	(2.34)	23	(3.37)
	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	Bulgaria	44	(4.66)	9	(2.80)	31	(4.35)	16	(3.51)
	EU	26	(2.28)	15	(8.69)	25	(3.74)	34	(5.30)
4. Grade11voc	Bulgaria	40	(4.49)	7	(2.27)	36	(4.37)	16	(3.36)
	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	Bulgaria	31	(3.74)	22	(3.30)	28	(3.65)	19	(3.08)
	EU	18	(2.02)	33	(2.95)	25	(2.33)	24	(2.64)
2. Grade8	Bulgaria	26	(2.31)	24	(2.05)	23	(2.11)	27	(2.28)
	EU	23	(1.43)	31	(1.27)	24	(1.52)	22	(1.17)
3. Grade11gen	Bulgaria	25	(2.75)	30	(2.59)	20	(2.54)	25	(2.29)
	EU	28	(2.41)	27	(2.68)	26	(1.65)	19	(1.67)
4. Grade11voc	Bulgaria	26	(2.94)	29	(2.76)	26	(2.56)	19	(2.35)
	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	Bulgaria	38	(1.82)	37	(1.62)	25	(2.49)
	EU	31	(1.00)	50	(0.85)	19	(0.67)
2. Grade11gen	Bulgaria	45	(1.75)	29	(1.61)	26	(1.65)
	EU	36	(1.18)	36	(1.00)	28	(1.47)
3. Grade11voc	Bulgaria	38	(1.91)	34	(1.72)	28	(1.98)
	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	Bulgaria	14	(2.88)	68	(3.85)	19	(3.16)
	EU	37	(4.43)	48	(4.15)	15	(2.12)
2. Grade8	Bulgaria	77	(3.37)	10	(2.59)	14	(2.57)
	EU	68	(2.87)	24	(3.31)	8	(1.16)
3. Grade11gen	Bulgaria	51	(4.65)	37	(4.51)	13	(3.14)
	EU	55	(12.27)	39	(10.34)	5	(2.06)
4. Grade11voc	Bulgaria	8	(2.35)	57	(4.47)	35	(4.33)
	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).

Computer ratios. Any slight discrepancy between values in tables is explained by the slightly different method of calculation used. For further information please refer to the Technical Report.

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 Bulgaria 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 Bulgaria at all grades participation levels were among the highest of all countries in the survey.

Participation rates
(% of sampled schools with at least one questionnaire completed, all grades, Bulgaria and EU, 2011-12)

Grade	Bulgaria	EU mean
Grade 4	59	37
Grade 8	66	40
Grade 11 gen	46	35
Grade 11 voc	46	36