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Digital literacy and safety skills

Report

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Digital Literacy and Safety Skills

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Summary

Children's digital skills were assessed by asking 25,000 European 9-16 year old internet users about their online activities, skills and self-efficacy.

The range of digital skills and online activities are linked. But many younger (11-13 year old) children lack key critical and safety skills. Also, skills are unequally distributed by socio-economic status.

Developing safety skills may encourage other skills, and more skills are associated with more activities online. So, teaching children to be safer need not curtail and may even encourage online opportunities.

Digital skills matter

'Digital literacy' or 'e-skills' is crucial to children's use of the internet, as promoted by *Europe's Digital Agenda*.[1] Many assume that the more digitally literate children become, the more they can gain from the internet while avoiding or coping with online risks. *EU Kids Online* asked three questions of internet users in 25 countries:

- **Range of online activities:** children (aged 9-16) were asked if they had done any of 17 activities in the past month; presumably, the more (less) children do online, the greater (weaker) their skills.

- **Specific internet skills:** children (aged 11-16) were asked if they have any of 8 skills – both digital safety and critical/informational skills.

- **Self-efficacy:** children (aged 9-16) were asked, 'how true is it for you [that] I know a lot about the internet?'

Children's online activities

Online activities were classifed in terms of content, contact and conduct[2] - see Table 1, although arguably the categories are partially overlapping.

Table 1: Children's activities online in the past month

% who have…	9-12 year old		13-16 year old		
	Boys	Girls	Boys	Girls	All
Content-based activities					
Used the internet for school work	79	82	87	90	85
Played internet games on your own or against the computer	86	84	88	71	83
Watched video clips	66	64	87	85	76
Read/watched the news on the internet	38	36	60	57	48
Downloaded music or films	27	26	61	56	44
Contact/communication-based activities					
Used instant messaging	43	47	76	77	62
Visited a social networking profile	39	42	80	81	62
Sent/received email	42	47	74	76	61
Played games with other people online	47	33	63	33	44
Used a webcam	23	25	37	38	31
Visited a chatroom	14	14	35	28	23
Conduct/peer-participation activities					
Put or posted photos, videos or music to share with others	22	24	54	55	39
Put or posted a message on a website	18	18	44	40	31
Created a character, pet or avatar	20	17	21	13	18
Used file sharing sites	11	8	30	22	18
Spent time in a virtual world	15	14	21	12	16
Written a blog or online diary	4	6	15	18	11
Average number of activities	5.7	5.5	9.1	8.2	7.2

QC102: How often have you played internet games in the past 12 months? QC306a-d, QC308a-f and QC311a-f: Which of the following things have you done in the past month on the internet? Base: All children aged 9-16 who use the internet.

[1] http://ec.europa.eu/information_society/digital-agenda/index_en.htm
[2] See Livingstone, S., & Haddon, L. (2009) *EU Kids Online: Final Report*. LSE, London: EU Kids Online. http://eprints.lse.ac.uk/24372/

- **Children undertake nearly half of the activities (**averaging 7.2 of the 17 activities in Table 1), suggesting they enjoy diverse online experiences.

- **Participatory culture is less widespread**. Content (information and entertainment) and contact (or communication) activities are generally more popular than conduct (participatory) activities.

- **There are gender and age differences in skill.** Boys (7.5) undertake a slightly wider range of activities than girls (7.0). Whereas the 9-10-year olds undertake 4.7 activities on average, 11-12 year olds do 6.5, 13-14 year olds 8.1 and 15-16 year olds 9.1. As children grow older they learn to do more things on the internet.

- **Differences by socio-economic status (SES).** Children from high SES households have a wider online repertoire (7.6 activities), compared to those from middle (7.3) and low status groups (6.7).

Skills are unequal. Assuming it takes skill to undertake diverse online activities and that activities encourage the development of further skills, we conclude that younger children, girls and those from lower SES homes are gaining fewer skills (because they do less online, for various possible reasons).

Children's online skills

Conceptually, digital skills may be classified as instrumental (or basic or functional), informational (understanding, navigation, evaluation) and social (communication, self-disclosure, privacy). The eight skills included in the *EU Kids Online* survey focused on instrumental (mainly safety-related) and informational skills, and were asked of 11-16 year olds.

- **Children have on average about half the skills asked about**. Children are less able to block or filter content than they are to block people, find safety information or bookmark a website.

- **Younger children lack significant skills**. Boys (4.3) are slightly more skilled than girls (4.0). Age makes a differences: 11-12 year olds can do 2.8 skills, 13-14 year olds 4.3 and 15-16 year olds 5.2.

- **Children from high SES background are more skilled than those from low SES background.** Children from high SES homes say they know how to do 4.7 of the skills in Table 2, compared to those from middle (4.2) and low status homes (3.7).

- **These various skills go hand in hand**. The eight skills are all correlated with each other, forming a single scale.[3] Thus, it seems that those who are able to judge the veracity of websites are also those who can find safety information, those who can bookmark a site can also block unwanted messages. On the other hand, those who struggle with one skill are likely to struggle with another.

This has interesting policy implications. The teaching of safety skills may also improve other skills, while teaching instrumental or informational skills may also improve children's safety skills.

Table 2: Children's digital literacy and safety skills

	11-13 year old		14-16 year old		
% who say they can…	Boys	Girls	Boys	Girls	All
Instrumental/safety skills					
Bookmark a website	56	52	73	72	64
Block messages from someone you don't want to hear from	51	53	75	74	64
Change privacy settings on a social networking profile	41	44	69	69	56
Delete the record of which sites you have visited	42	37	67	61	52
Block unwanted adverts or junk mail/spam	41	39	65	57	51
Change filter preferences	19	16	46	31	28
Informational skills					
Find information on how to use the internet safely	54	51	74	70	63
Compare different websites to decide if information is true	47	44	67	63	56
Average number of skills	3.4	3.2	5.2	4.8	4.2

QC320a-d and QC321a-d: Which of these things do you know how to do on the internet? Please say yes or no to each of the following... If you don't know what something is or what it means, don't worry, just say you don't know.

Base: All children aged 11-16 who use the internet.

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[3] Factor analysis resulted in a single scale that explained 49% of the variance and with a Cronbach's alpha of 0.85.

EU Kids Online

Children's online self-efficacy

Another way to understand children's digital skills is to ask them to assess their own capacity. Although a crude indicator, subject to over- and under-estimation, **online self-efficacy at least reflects children's self-confidence online**. It is also simple to ask, making it a much-used survey item. Children were asked 'how true is it for you [that] I know a lot about the internet?' They were also asked, 'how true is it for you [that] I know more than my parents?' (Table 3).

- **Children knowing more than their parents has been exaggerated**. Only 36% of the European 9-16-year olds say it is very true that they know more than their parents, though 31% say it is a bit true. Also, only 33% say it's very true they know a lot about the internet, though 50% say it is a bit true.[4]

- **Some parents know more**: one third, rising to two thirds of 9-10 year olds say it is *not true* that they know more about the internet than their parents.

- **Age matters**. Older children are more self-confident than younger ones and boys are somewhat more confident than girls.

Table 3: Children's self-efficacy on the internet

	9-12 year old		13-16 year old		
% who say they can…	Boys	Girls	Boys	Girls	All
I know more about the internet than my parents					
Not true	48	52	17	18	33
A bit true	30	30	31	34	31
Very true	22	18	52	48	36
I know lots of things about the internet					
Not true	24	29	7	10	17
A bit true	54	54	44	49	50
Very true	22	17	49	41	33

QC319a-b (11-16yr); QC3a-b (9-10yr): How true is it for you that... I know more about the internet than my parents? I know lots of things about using the internet

Base: All children aged 9-16 who use the internet.

[4] See Helsper, E., & Eynon, R. (2010). Digital natives: where is the evidence? *British Educational Research Journal, 36*(3), 502-520.

- **Which children know more than their parents?** Interestingly, in addition to older children saying they know more, so too do children from low SES homes, compared to those from high SES homes. Since there is no SES difference for saying they know lots about the internet, this finding points to children's awareness of the lower digital skills of their parents for those from low SES homes.

Comparing measures of digital skill

The three approaches taken in this report assess children's skills implicitly (by asking about their activities), explicitly (by asking about particular skills) and holistically (by asking for self-efficacy overall). **How do these measures relate to each other?**

Table 4: Correlations between skills, activities and self-efficacy

	Skills	Activities	Self-efficacy
Skills			
Activities	0.55		
Self-efficacy	0.43	0.36	

NB The self-efficacy item is 'I know lots of things about the internet'.

Base: All children aged 11-16 who use the internet.

- **Activities, skills and self-efficacy are all positively associated**.[5] In short, the more children do online, the more skills they have and the more they judge that they know a lot about the internet. Or, the more skills and/or self-efficacy children have, the greater the range of online activities they undertake. But the converse is also the case – the less of one of these, the less likely the others.

- **The highest association is between activities and skills** (r=0.55). Self-efficacy is less strongly related to either activities (r=0.36) or skills (r=0.43).

This suggests that **improving children's specific skill set is more important than improving their overall confidence** that they know a lot about the internet if the aim is to encourage a greater breadth of use. Conversely, encouraging children to do more online is a good way of improving their digital skill set.

[5] Correlations were tested using Pearson's r and are significant at p<0.001.

Comparing countries

In addition to comparing skills and activities at the individual level, these can also be compared across countries. In other words, is it the case that in countries where children do a wide (or narrow) range of online activities their digital skills are greater (or lesser)?

- Figure 1 shows that at the country level, this relationship is present but weaker than at the individual level. Still, **in countries where children have more digital skills, they also have a wider repertoire of online activities**, and vice versa.

- Children in Finland claim to be the most skillful, although their activity score is about average. The greatest range of activities is reported by children in Lithuania.

- In Turkey, both the skills and the level of activities are low. Ireland stands out as a country with a low number of acitvities.

- Since the correlation does exist, this suggests that **at the country level it is worth encouraging either online activities or skills as the one will stimulate the other.**

Figure 1: Digital skills by online activities and country
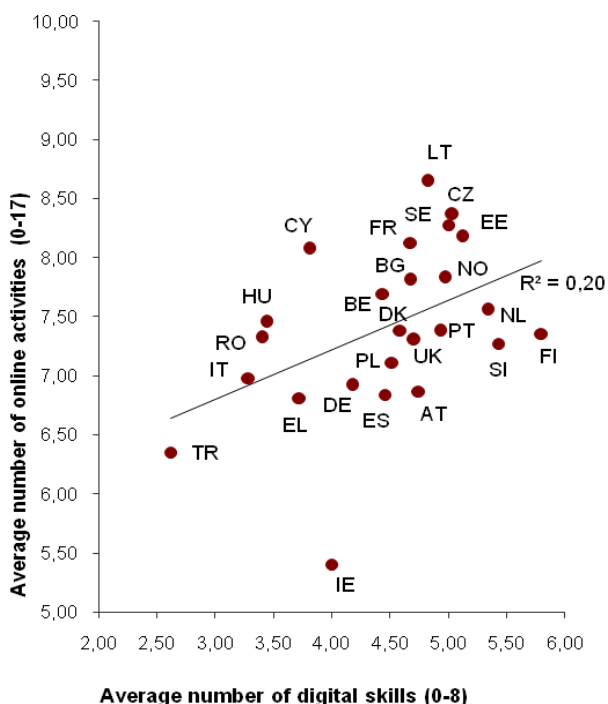
Conclusions

- **Measurement**: if direct observation of children's digital skills is impractical, then measuring children's range of online activities is an acceptable and practical substitute. At an individual level the correlation with claimed digital skills is high, although it is weaker at the country level. The simple measure of self-efficacy is the least satisfactory (although it reflects skills adequately).

- **Policy implications**. As digital skills develop with use, inequalities persist – in terms of SES, age and, to a lesser degree, gender. Specific efforts to overcome skill inequalities are thus recommended.

- **Low skills among 11-13 year olds poses a challenge** for teachers, parents and others. Fewer than half can block unwelcome messages or find safety information or bookmark a site, and only a third can compare websites to decide if information is true or block unwanted junk mail.

- To be sure, by trial and error or peer-to-peer learning, older children do gain digital skills, including safety skills. But as ever younger children go online perhaps we cannot wait for this to occur naturally so **digital skills education is important**.

- **The association between safety skills and critical literacy skills** is interesting since it implies that improving (or teaching) the one may also improve the other. This could be explored further.

- Finally, since more safety skills leads to other skills, and since more skills is associated with more activities online, **teaching children to be safer online need not curtail their online opportunities; rather, the opposite occurs.**