

# Effectiveness of teachers' and peers' mediation in supporting opportunities and reducing risks online

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## Introduction

A distinctive feature of the *EU Kids Online* survey is that it asked children about mediation of internet use practised by parents, teachers and peers (Livingstone et al, 2011). This chapter starts from the assumption that these three agents, by virtue of their different social relationships with children, play distinct roles in influencing children's online experiences, both positively and negatively. The chapter evaluates the effectiveness of mediation by teachers and peers in supporting online opportunities and in reducing risks and harm.

## Teachers' mediation

Parents often expect teachers to act as coach or facilitator in relation to their children's internet use, in other words to act 'in loco parentis' (Wishart, 2004, p 200). There is a quite long tradition of research examining the role of parental mediation of their children's (new) media use. Work on teachers' mediation, however, is more recent (cf Hasebrink et al, 2009; Inan et al, 2010; Zhao et al, 2011), and most studies (see, for example, Wishart, 2004; Berrier, 2007) do not differentiate between different types of mediation, or ask how teachers' mediation is related to online risks and harm experienced by children.

Research indicates that teachers are concerned mainly with internet safety. Rather than engaging in active mediation, teachers tend to apply rules that restrict children's internet use, but which also hinder the development of good internet safety practices and reduce the

1 opportunities for children to explore online opportunities (Wishart,  
2 2004).

3 Although the support given by teachers has been shown to have a  
4 weak influence on children's intrinsic motivation to go online, some  
5 of the motivation for children to explore the internet is related to use  
6 of the internet for school assignments (Zhao et al, 2011). In relation  
7 to more advanced usage than is required for schoolwork, however,  
8 teachers' mediation is the weakest predictor of children's online content  
9 creation (Kalmus et al, 2009b).

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## 11 **Peer mediation**

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13 The role played by peers may also be important for shaping the  
14 online practices of young people (cf Hasebrink et al, 2009; see also  
15 Chapter 1 in this volume), although relatively little is known about  
16 their influence. Livingstone and Bober (2005) found that compared  
17 to parents and teachers, peers may be less important for help related to  
18 using the internet, but may have a significant impact on young people's  
19 intrinsic motivations for going online (Zhao et al, 2011). Peers are  
20 also the main sources of information about new opportunities on the  
21 internet (Kalmus, 2007). For instance, they are the biggest influence  
22 on establishing a social networking site profile and contributing to  
23 a blog (Kalmus et al, 2009b). In some cases, however, this positive  
24 influence may become confused with more ordinary peer pressure,  
25 often referred to as the most frequent reason for taking up creative  
26 (for example, blogging, social networking) and interactive (for example,  
27 instant messaging) uses of new media (boyd, 2008; Siibak, 2009). To  
28 our knowledge, there are no studies that focus on the possible relations  
29 between peer mediation and risky and harmful experiences online.

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## 31 **Research questions and measures**

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33 First, we explore the extent to which support from teachers and peers  
34 is related to children's uptake of online opportunities and their levels  
35 of digital literacy and safety skills. Second, we investigate whether  
36 and how teachers' mediation and peer mediation are related to the  
37 main online risks and harm experienced by children. We address this  
38 through several focused research questions. These questions enquired  
39 about the strength of the relationship between teachers' mediation  
40 compared to peer mediation, and children's digital skills and range of  
41 online opportunities and whether particular mediating activities worked  
42 in the same direction. We analyse sociodemographic variations in the

1 effectiveness of teachers and peers' mediation: do a child's age and  
2 gender affect the relation between support from teachers and friends,  
3 and his or her digital skills and online opportunities? We also examine  
4 how strongly teachers' mediation versus peer mediation is related to  
5 children's experiences of online risks and harm and investigate whether  
6 particular mediating activities work in the same direction.

7 Finally, we explore whether there are substantial differences among  
8 European countries with regard to correlations between teachers and  
9 peers' mediation on the one hand, and children's digital skills and online  
10 opportunities, and experiences of risks and harm on the internet on  
11 the other.

12 Teachers' mediation was measured by the responses to eight questions  
13 that asked about *restrictive mediation*, *active mediation of the child's internet*  
14 *use* and *active mediation of the child's internet safety* (see the Appendix at  
15 the end of this volume for more details). Positive responses to the eight  
16 questions were summed into an *index of teachers' mediation*. Average  
17 intercorrelation among the eight items (the Cronbach's alpha) was 0.86.

18 *Peer mediation* was measured by the responses to five questions on *active*  
19 *mediation of internet safety* (see the Appendix at the end of this volume).  
20 Positive responses were summed into an index of peer mediation; the  
21 Cronbach's alpha was 0.80.

22 To measure the scope of *online opportunities* we used the cumulative  
23 index of 17 online activities undertaken by children in the month  
24 previous to the survey (see Chapter 6 in this volume). The level of  
25 children's *digital literacy and safety skills* was measured by the cumulative  
26 index of eight specific skills (only 11- to 16-year-olds were included  
27 in these questions) (see Chapter 7).

28 For *risks* online, we used a general measure indicating whether the  
29 child experienced any of seven risks listed in the *EU Kids Online*  
30 survey: that is, seeing a sexual image on the internet; being bullied  
31 on the internet; seeing or receiving sexual messages on the internet  
32 ('sexting'); contacting someone on the internet not met with face to  
33 face; meeting an exclusively online contact offline; seeing potentially  
34 harmful user-generated content; and suffering misuse of personal data  
35 (41 per cent of children had encountered at least one of these risks –  
36 see Livingstone et al, 2011).

37 As the measure of *harm* we used the general question: 'In the past  
38 12 months, have you seen or experienced something on the internet  
39 that has bothered you in some way?' (12 per cent answered 'yes' to this  
40 question – see Livingstone et al, 2011).

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## Teachers and peers supporting children's digital skills and online opportunities

Table 19.1 shows that the indexes of teachers and peers' mediation are positively correlated to the number of children's digital literacy and safety skills, and the number of online activities engaged in, in the previous month. The correlations are statistically significant also if we control for age. Thus, support from teachers and friends is related to increased digital skills and range of online activities that children engage in. The effect size of the correlations is small, however, which suggests there are other aspects that influence children's digital skills and opportunities.

The very small difference between teachers and peers' effectiveness, particularly with regard to supporting digital literacy and safety skills, is surprising; it might be expected that teachers' mediation of children's internet use would be directed towards safeguarding and coaching, while friends might be more likely to influence their peers to explore the 'digital jungle' further and exploit more online opportunities.

To analyse whether particular mediating activities practised by teachers and peers work in the same direction, we compared the mean values of the indexes of children's digital skills and online activities, between two groups: children who reported a specific mediating activity, and children who did not. Almost every one of the mediating activities undertaken by teachers and peers was positively related to children's digital skills and online activities: the mean values of the indexes were significantly higher ( $p < 0.001$ ) among the group of children who reported a specific mediating activity, compared to those who did not. In the case of one item of peer mediation ('Have your friends ever explained why some websites are good or bad?'), the difference of the mean values of the index of digital skills was not significant. Only one mediating activity practised by teachers ('Have your teachers ever helped you in the past when something has bothered you on the internet?') showed opposite directions: children who

**Table 19.1: Correlations between the indexes of children's digital skills and online activities, and mediation by teachers and peers**

	Teachers' mediation		Peer mediation	
	Pearson's $r$	Partial correlations (controlling for age)	Pearson's $r$	Partial correlations (controlling for age)
Skills	0.12	0.10	0.10	0.07
Activities	0.10	0.07	0.15	0.12

Note: All correlations are significant at  $p < 0.001$ .

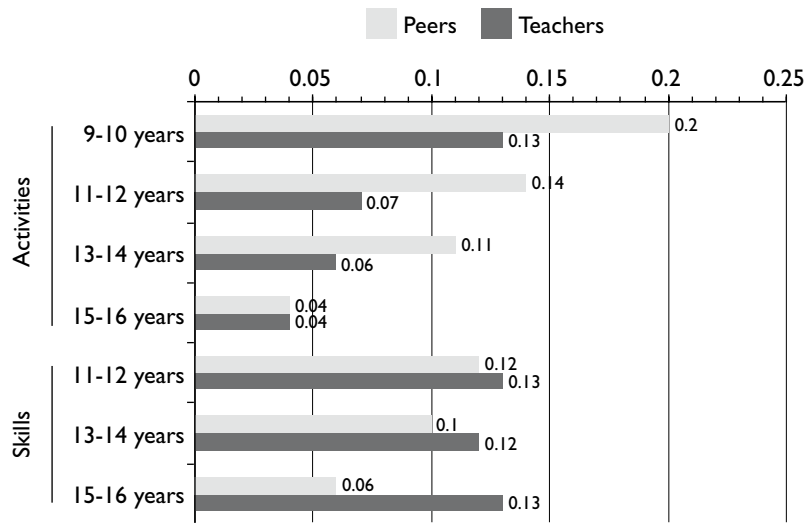
Base: All children who use the internet.

1 reported this mediating activity showed a lower mean value for skills  
 2 ( $M=4.09, SD=2.76$ ) than children who did not ( $M=4.21, SD=2.64$ ;  
 3  $p<0.01$ ). It is likely that less skilled children consult their teachers for  
 4 help if something online bothers them.

5 To analyse sociodemographic influences we compared the correlations  
 6 of the indexes of children's digital skills and online activities, and  
 7 mediation by teachers and peers, among age groups (see Figure 19.1)  
 8 and among boys and girls (see Figure 19.2). To test the significance  
 9 of the interaction effect between child's age and teachers and peers'  
 10 mediation, and child's gender and teachers and peers' mediation, we  
 11 employed linear regression analysis where the dependent variables  
 12 were digital skills and online activities, and teachers' mediation, peer  
 13 mediation, age, gender and interactions between them were the  
 14 predictors.

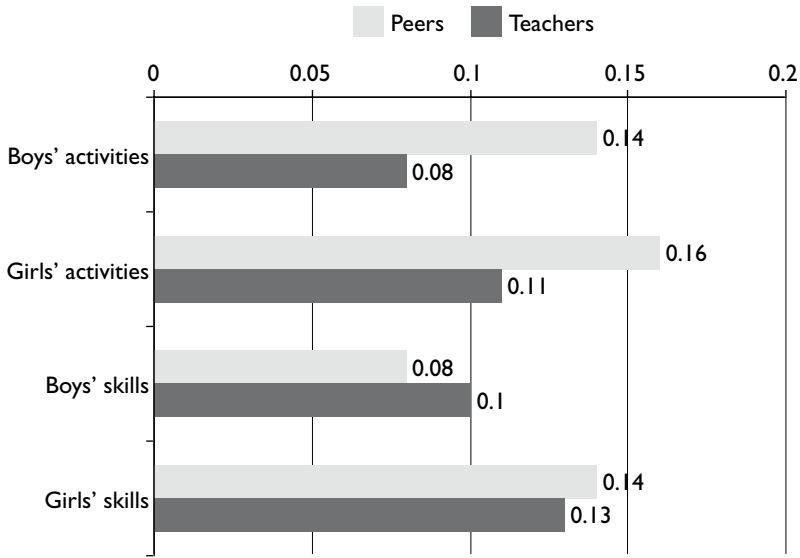
15 The role of teachers in advancing children's skills does not change  
 16 much with children's increasing age; the part they play in widening  
 17 horizons and increasing children's online opportunities diminishes as  
 18 children get older (see Figure 19.1). The importance of peer mediation  
 19 for increasing skills and opportunities decreases as children get older.  
 20 Table 19.2 demonstrates that there are significant interaction effects  
 21 between peer mediation and age, and between teachers' mediation  
 22 and age.

23 **Figure 19.1: Correlations between the indexes of children's digital skills**  
 24 **and online activities, and mediation by teachers and peers (in age groups)**



41 Base: All children who use the internet.  
 42 Note: Pearson's correlations; all significant at  $p<0.001$ .

**Figure 19.2: Correlations between the indexes of children’s digital skills and online activities, and mediation by teachers and peers (among boys and girls)**



Base: All children who use the internet.  
 Note: Pearson’s correlations; all significant at  $p < 0.001$ .

**Table 19.2: Teachers’ mediation, peer mediation, a child’s age and gender, and interaction effects in predicting children’s digital skills and online activities**

Predictors	Dependent variable: skills	Dependent variable: activities
<i>Teachers</i>		
Teachers’ mediation	0.248***	0.043***
Age	0.425***	0.489***
Gender <sup>1</sup>	0.085***	0.060***
Teachers’ mediation × age	-0.123*	-0.115***
Teachers’ mediation × gender	-0.037**	-0.011
R <sup>2</sup>	0.179	0.232
<i>Peer</i>		
Peer mediation	0.381***	0.317***
Age	0.440***	0.493***
Gender <sup>1</sup>	0.081***	0.049***
Peer mediation × age	-0.277***	-0.191***
Peer mediation × gender	-0.036**	0.010
R <sup>2</sup>	0.177	0.246

Notes: <sup>1</sup> 0 = female, 1 = male.  
 Beta coefficients; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .  
 Base: All children who use the internet.

Support from teachers and friends is slightly more important for girls than for boys in relation to increasing digital skills (Figure 19.2). This is expected, since girls tend to be less self-confident about their digital skills (see, for example, Henwood et al, 2000) and are more likely to seek and be more receptive to social support. Table 19.2 shows that the interaction effects between teachers' mediation and gender, and between peer mediation and gender, are significant for predicting skills. Boys are more likely to report higher levels of digital skills and a greater number of online activities compared to girls.

### Teachers and peers' mediation related to online risks and harm

The general measure for whether the child has experienced any of seven online risks is strongly positively correlated to the child's age ( $r_{pb}=0.37$ ), total time per week on the internet ( $r_{pb}=0.32$ ), number of online activities ( $r_{pb}=0.45$ ) and number of digital skills ( $r_{pb}=0.34$ ; all significant at  $p<0.001$ ). These four variables are correlated positively, but much more weakly with harm (age -  $r_{pb}=0.06$ ; time on the internet -  $r_{pb}=0.11$ ; online activities -  $r_{pb}=0.15$ ; and digital skills -  $r_{pb}=0.12$ ; all significant at  $p<0.001$ ). In the following correlations for teachers and peers' mediation, and online risks and harm, we control for these four variables.

Table 19.3 presents the indexes of teacher mediation and peer mediation, which are very weakly, but positively related to online risks and harm, that is, both risks and harm are slightly more likely with higher levels of teacher or peer support. When we include the control variables, three of the positive correlations are even more weakly significant. The findings are similar for different combinations of the control variables, although the coefficients vary slightly in size.

**Table 19.3: Correlations between children's experiences of online risks and harm, and mediation by teachers and peers**

	Teachers' mediation		Peer mediation	
	Point biserial correlations $r_{pb}$	Partial correlations*	Point biserial correlations $r_{pb}$	Partial correlations*
Risks	0.05	ns	0.09	0.03
Harm	0.06	0.05	0.07	0.05

Notes: \*Controlled for a child's age, total time spent on the internet per week, the number of online activities and the number of digital skills.

All correlations are significant at  $p<0.001$ .

Base: All children who use the internet.

1 Table 19.4 (*phi* coefficients) shows that the correlations between  
 2 particular mediating activities and the measure of children's experience  
 3 of any risks are mostly not significant, but that the correlations with  
 4 children's experience of harm are mostly positive, although weak. One  
 5 of the stronger positive correlations is for harm, and the statement:  
 6 'Friends have helped you in the past when something has bothered  
 7 you on the internet' ( $\phi=0.13$ ). The correlation is stronger among  
 8 13- to 14-year-olds ( $\phi=0.16$ ) and 15- to 16-year-olds ( $\phi=0.15$ ; all  
 9 significant at  $p<0.001$ ). Children who had experienced harm on the  
 10 internet more often responded positively (46 per cent) to this statement  
 11 than children who had not (24 per cent). This finding suggests that  
 12 when children have experienced harm, they often turn to their friends  
 13 to discuss it. This is supported by the analysis of the main sources of  
 14 social support (see Chapter 17), which shows that following a negative  
 15 online experience, children are more likely to discuss it with their  
 16 friends. (Analogical findings and conclusions about parental mediation  
 17 changing after a child has experienced online harm are presented in  
 18 Chapter 18.) It would therefore seem that important mediation by  
 19 peers (as well as parents and teachers) occurs *retroactively*, with children  
 20 being active agents in this process and initiating the mediation when  
 21 needed.

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 24  
 25 **Table 19.4: Correlations (*phi* coefficients) between the indicators of**  
 26 **mediation by teachers and peers, and children's experiences of online**  
 27 **risks and harm**

	Teachers' mediation		Peer mediation	
	Risks	Harm	Risks	Harm
Helped you when you found something difficult to do or find on the internet	ns	0.03	0.05	0.03
Explained why some websites are good or bad	-0.02*	0.04	ns	0.03
Suggested ways to use the internet safely	ns	0.04	ns	ns
Suggested ways to behave towards other people online	ns	0.02*	ns	0.03
Helped you in the past when something has bothered you on the internet	ns	0.05	0.07	0.13
Made rules about what you can do on the internet at school	0.02*	0.03	na	na
Talked to you about what you do on the internet	ns	0.04	na	na
In general, talked to you about what you would do if something on the internet ever bothered you	ns	0.04	na	na

41 Notes: \* Correlation is significant at  $p<0.05$ ; all other correlations are significant at  $p<0.001$ .

42 Base: All children who use the internet.



## 1 Comparing countries

2  
3 Significant positive correlations between mediation by teachers and  
4 peers, and children's digital skills and online opportunities are universal  
5 across the countries with only a few exceptions. The effectiveness of  
6 teachers' mediation for advancing children's digital and safety skills is  
7 relatively high in Denmark and Portugal ( $r=0.24$ ,  $p<0.001$ ), but not  
8 discernible in France, Lithuania, Slovenia and Turkey. The strongest  
9 positive correlations between teachers' mediation and children's  
10 range of online activities are in Denmark ( $r=0.25$ ), Austria ( $r=0.24$ )  
11 and Norway ( $r=0.23$ ; all significant at  $p<0.001$ ), while there is no  
12 significant correlation in Turkey. The irregularity of these cases makes  
13 their explanation difficult. While the lack of effectiveness of teachers'  
14 mediation in some countries may in part be because in these countries  
15 a relatively small percentage of teachers describe themselves as computer  
16 and internet-competent in classroom situations (41 per cent in France  
17 and 51 per cent in Lithuania compared to the average of 60 per cent  
18 in 21 European countries), this does not apply to Slovenia where the  
19 same indicator (76 per cent) is the second highest in Europe (there are  
20 no data for Turkey; Empirica:LearnInd, 2006).

21 Correlations between peer mediation and digital skills are highest  
22 for Germany ( $r=0.26$ ), Norway and Romania ( $r=0.23$ ; all significant  
23 at  $p<0.001$ ), but support from friends does not contribute significantly  
24 to children's digital skills in the Czech Republic, France and Slovenia.  
25 The influence of peers for increasing online opportunities is universal  
26 across all European countries: significant positive correlations ranging  
27 from  $r=0.06$  ( $p<0.05$ ) for Turkey to  $r=0.29$  ( $p<0.001$ ) for Germany,  
28 Hungary and Norway.

29 It is also difficult to discern any specific country patterns for the  
30 relation between teachers or peers' mediation, and online risks or harm.  
31 There are few significant correlations between *teachers' mediation* and  
32 *risks*. Four countries show significant weak negative correlations: Cyprus  
33 ( $r_{pb}=-0.13$ ,  $p<0.01$ ), Denmark ( $r_{pb}=-0.11$ ,  $p<0.05$ ), Greece ( $r_{pb}=-0.08$ ,  
34  $p<0.05$ ) and Spain ( $r_{pb}=-0.14$ ,  $p<0.001$ ). And five countries show  
35 significant, but weak positive correlations between *teachers' mediation*  
36 and *harm*: the Czech Republic ( $r_{pb}=0.12$ ,  $p<0.01$ ), Germany ( $r_{pb}=0.08$ ,  
37  $p<0.05$ ), the Netherlands ( $r_{pb}=0.10$ ,  $p<0.01$ ), Romania ( $r_{pb}=0.11$ ,  
38  $p<0.01$ ) and Slovenia ( $r_{pb}=0.10$ ,  $p<0.05$ ).

39 Significant weak negative correlations between *peer mediation* and  
40 *risks* occur for four countries: Bulgaria ( $r_{pb}=-0.07$ ,  $p<0.05$ ), Finland  
41 ( $r_{pb}=-0.10$ ,  $p<0.05$ ), Lithuania ( $r_{pb}=-0.12$ ,  $p<0.01$ ) and Spain ( $r_{pb}=-0.08$ ,  
42  $p<0.05$ ), and the correlations for Belgium ( $r_{pb}=0.08$ ,  $p<0.05$ ) and

1 Germany ( $r_{pb}=0.09, p<0.05$ ) are significant and weakly positive. The  
 2 correlations are significant and weakly positive for *peer mediation* and  
 3 *harm*: in Austria ( $r_{pb}=0.11, p<0.01$ ), Denmark ( $r_{pb}=0.17, p<0.001$ ),  
 4 Estonia ( $r_{pb}=0.10, p<0.01$ ), Greece ( $r_{pb}=0.11, p<0.01$ ), Italy ( $r_{pb}=0.11,$   
 5  $p<0.01$ ), the Netherlands ( $r_{pb}=0.08, p<0.05$ ), Norway ( $r_{pb}=0.15,$   
 6  $p<0.001$ ), Portugal ( $r_{pb}=0.09, p<0.05$ ), Sweden ( $r_{pb}=0.11, p<0.01$ ),  
 7 Slovenia ( $r_{pb}=0.10, p<0.01$ ) and the UK ( $r_{pb}=0.13, p<0.001$ ).

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9

## 10 Conclusion

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11 Support from teachers and from friends has a positive effect on  
 12 increasing children's digital skills and the range of their online  
 13 activities. However, this importance decreases for older children, and  
 14 especially with regard to increasing opportunities. We can conclude  
 15 that social support from teachers and friends for learning about new  
 16 online activities is stronger when children begin their climb up the  
 17 'ladder of online opportunities' (cf Livingstone and Helsper, 2007).  
 18 More advanced uses of the internet, particularly in relation to creative  
 19 online activities, likely depend more on children's individual agency  
 20 and priorities (cf Kalmus et al, 2009a), and are not easily fostered by  
 21 social learning and support.

22

23 Given that parents, teachers and peers play distinct roles in influencing  
 24 children's online experiences, the very small difference between  
 25 the effectiveness of teachers and peers' mediation is surprising. The  
 26 universal pattern of a significant and positive correlation between peer  
 27 mediation and online activities, however, might indicate the stronger  
 28 role of peers in encouraging children's advance on the 'ladder of online  
 29 opportunities'. While many parents expect their children will acquire  
 30 primary digital literacy and safety skills at school (cf Chapter 1 in this  
 31 volume), very few teachers in several European countries are equipped  
 32 to provide them.

32

33 We also found that teachers and peers' mediation are weakly,  
 34 although significantly positively correlated with harm experienced on  
 35 the internet. Perhaps, contrary to common expectations, teachers and  
 36 peers' mediation does not reduce children's negative online experiences.  
 37 However, without this mediation, it is possible that, over time, more  
 38 children would experience risks and harm. It would seem that, often,  
 39 mediation by peers (and parents and teachers) is triggered after a child  
 40 had a negative online experience. This hypothesis, and considering  
 41 children as active agents initiating mediation when required, should  
 42 be investigated in future research.

42

1 An implication for policy is that these types of social mediation,  
 2 particularly the role played by teachers, have a great, and unrealised,  
 3 potential for reducing online risks and harm by improving children's  
 4 online competences.

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