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Sofie Vandoninck , Leen d'Haenens & Keith Roe

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ONLINE RISKS

Coping strategies of less resilient children and teenagers across Europe

Sofie Vandoninck, Leen d'Haenens and Keith Roe

Exposure to online risks does not necessarily result in harm, but some groups of children prove to be less resilient than others when facing a potentially harmful situation online. The aim of this article is to better understand and explain which children under which social conditions are more likely to be more or less resilient. Children with low self-efficacy and more psychological difficulties are more vulnerable online as they experience stronger negative feelings and are more likely to go offline for a while or simply hope the problem would go away. A higher level of digital literacy is related to the use of online coping strategies aimed at solving the problem and protecting the child from further harm. Girls and younger children are more susceptible to sexual risks. Parental mediation and monitoring do not result in more online resilience. Mediation from peers and teachers has rather ambiguous outcomes.

KEYWORDS children; coping; online resilience; online risks

Introduction

Frequently, children exposed to online risks do not feel bothered or upset afterwards (Livingstone, Haddon, Görzig, & Olafsson, 2011), and most children respond in a positive (proactive) or neutral way to these online experiences (Staksrud & Livingstone, 2009). However, some children prove to be less resilient after feeling bothered by a potentially harmful situation online, as they experience more difficulties in adopting an appropriate coping strategy (Staksrud & Livingstone, 2009; Vandoninck, d'Haenens, & Donoso, 2010). Online resilience is understood as being able to deal with a negative experience online: i.e. not remaining passive but displaying problem-solving coping strategies in order to protect oneself from future harm. This article deals with a set of risks that are relevant on the public agenda: exposure to sexual content, being a victim of online bullying, and receiving sexual messages (sexting). For a more detailed description of these types of risks, see Livingstone et al. (2011) and Livingstone and Haddon (2009). We focus on those children who have reported being bothered by these risks.

The contribution of this article lies in the risk-specific approach combined with several indicators of the child's social environment (i.e. parents, teachers and peers). Such an approach allows us to identify the relative impact of each of these social actors in different risk situations, and may prove helpful in developing target-group initiatives aimed at a specific online risk.

Theoretical Overview

Coping and Resilience Off- and Online

As children become involved in a broader range of online activities and take up more online opportunities, they inevitably encounter more online risks (Livingstone & Haddon, 2009). Yet, exposure to online risks does not always result in harm (Livingstone et al., 2011). Moreover, what an adolescent perceives as “online risk” is not necessarily congruent with an adult’s view of the matter. Whether or not a child experiences “harm” thus depends on how children themselves perceive the risk; if a child does not feel threatened, it is not problematic that he or she reacts with indifference (Staksrud & Livingstone, 2009). Hence, overprotection and moral panic are to be avoided. Nevertheless, some children do feel bothered or upset after exposure to online risks. Subsequently, this feeling of being “harmed” leads to one or more coping responses.

Coping can be defined as “efforts to adapt to stress or other disturbances by a stressor or adversity in order to protect oneself from the psychological harm of risky experiences” (Masten & Gewirtz, 2006). These efforts are thoughts and behaviours, so as to manage internal and external demands of stressful situations (Folkman & Moskowitz, 2004). Several studies have developed a categorisation of coping strategies children adopt when confronted with adversities (Aspinwall & Taylor, 1997; Folkman & Moskowitz, 2004; Schwarzer & Knoll, 2003; Carver, Scheier, & Weintraub, 1989; Pearlin & Schooler, 1978). Two main categories have emerged: the first is *problem-focused coping*, where the individual deals with the actual problem, and the second is *emotion-focused coping*, with the individual trying to reduce the negative emotions provoked by the problem. Research on coping among victims of bullying indicates that children seldom act exclusively in a problem-focused or emotion-focused way, but often combine these strategies (Tenenbaum, Varjas, Meyers, & Parris, 2011). These insights result from research on offline situations, with the rationale for offline coping not necessarily differing from online coping.

Online coping refers to internet-specific problem-solving strategies children adopt after a negative experience online, such as deleting the message or blocking the sender. Investigating how children respond to online risks, Livingstone et al. (2011) defined three types of coping strategies: fatalistic/passive, communicative, and proactive/problem-solving. Responding in a fatalistic or passive way entails the absence of taking an initiative that tackles the cause of the problem. A communicative approach refers to talking with someone trustworthy. Proactive strategies refer to both a willingness to act and actual action when facing problems, with a view to reducing or eliminating further harm.

Resilience is conceptualised as a process of learning to deal with difficult or problematic issues in the online or offline world. It involves learning from one’s mistakes and recovering from negative experiences. Risk and resilience go hand in hand as resilience “can only develop through exposure to risk or to stress” (Coleman & Hagell, 2007). Either online or offline, more resilient children are more problem-focused and tend to use coping strategies that invoke positive emotions (Billings, Folkman, Acree, & Moskowitz, 2000). Resilience can be enhanced when children feel capable of managing adverse situations, and when negative emotions are transferred into positive emotions using certain coping strategies. Consequently, as children learn how to adequately cope with (online) adversities, they develop (online) resilience.

Socio-demographics, the child’s personality, and the social context have an impact on the choice of coping strategies and the level of resilience (Rueda & Rothbart, 2009; Ybarra,

Eselage, & Mitchell, 2007; Billings & Moos, 1981). While girls who are victims of bullying prefer to talk to somebody (Kochenderfer-Ladd & Skinner, 2002), boys are more likely to respond in a more “expressive” way—i.e. rather aggressively, through shouting or beating—when coping with feelings of anger (Whitesell, Robinson, & Harter, 1993). Pessimistic children tend to respond fatalistically, while optimistic children are more willing to tackle the problem. Children with a high level of perceived control, who are motivated to obtain their goals and with a high need for disclosure are also more likely to be problem-focused (Greenglass, 2002). Children attaching more importance to harmony in their social network will respond more positively and constructively when confronted with a conflict (Rudolph, Albaied, Flynn, Sugimura, & Agoston, 2011). The way parents respond to stressful situations (modelling), and the suggestions parents give on how to cope with adversities (coaching), has a strong impact on children’s coping responses and development of online resilience (Kliewer, 2006). Research indicates that children who experience more difficulties and adversities offline also seem to struggle more online—the so-called double jeopardy effect (Heim, Brandtzaeg, Hertzberg, Endestad, & Torgerson, 2007; Vandoninck, d’Haenens, & Segers, 2012).

Online Resilience and Digital Literacy

Digitally literate people go online for a wide range of activities, and in so doing build up a capacity to obtain knowledge and information, to critically evaluate it, to select relevant elements and to create new content (Livingstone & Helsper, 2007). Previous research shows that few children are adequate information seekers and that few are predisposed to critically evaluate the information obtained online (Livingstone et al., 2011). Thus mounting evidence warns against overestimating the youngest generation’s digital literacy—a cause for concern considering how vital such abilities are in an information-based society. Digitally literate children are considered to be more resilient to online adversities (Vandoninck et al., 2012).

Online Resilience and Influence of Individual Characteristics and Social Context Across Europe

Children below the age of 12 and girls are more susceptible to harm subsequent to online risk exposure, especially in the case of sexual risks such as viewing pornographic images or receiving sexual messages (Staksrud & Livingstone, 2009). Nevertheless, younger children and girls are more likely to confide in an adult when feeling upset after a harmful online experience (Livingstone et al., 2011; Vandoninck et al., 2010). Although talking to somebody might not immediately solve the problem, this is considered to be a therapeutic coping strategy. Children with low self-esteem, psychological problems, aggressive behaviour, low life satisfaction and a problematic relationship with parents and peers are more vulnerable online inasmuch as they experience more harm after a negative online experience, especially in terms of contact risks (Heim et al., 2007; Livingstone & Helsper, 2007; Ybarra et al., 2007).

The social environment also strongly influences how children feel and behave when confronted with adversity online (Livingstone & Helsper, 2008; Nathanson, 2004; Bauwens, 2012). Drawing upon research into mediation of children’s television viewing, three groups of parental media regulation strategies can be distinguished. *Active or instructive mediation* refers to discussing what the child is seeing or doing, either in a positive/instructional way

or a negative/critical way. *Restrictive mediation* involves rule-making practices on the time and location of use and content to be exposed to. *Co-using* refers to being present while the child is consuming media, ranging from actually sitting next to the child and following up its use very closely to simply being around in the same room (Nathanson, 2001; Valkenburg, Krcmar, Peeters, & Marseille, 1999). As to internet use, most parents prefer co-use and active mediation. The effectiveness of parental mediation with regard to risk reduction, however, can be questioned (Liau, Khoo, & Ang, 2005; Mitchell, Finkelhor, & Wolak, 2003). Parents who themselves are frequent internet users with a positive attitude towards the internet tend more often to mediate their children's internet use, although this does not result in less exposure to online risks (Livingstone & Helsper, 2008).

Peers become more important in children's lives as they grow up, mediating each others' internet use. If the peer group is more engaged in digital media, children are more likely to take up more online opportunities and become "all round" users (Eynon & Malmberg, 2011). Besides receiving support from peers, young people also welcome adult digital educators who take up a role as "co-conspirators" rather than authority Figures (Ito et al., 2008). However, poor digital skills among teachers are a recurring problem, making them feel incompetent and unconfident when transferring digital literacy skills to their pupils (Nycyk, 2011; Prendes, Castaneda, & Gutierrez, 2010).

Media environment, ICT-regulation, educational system, family culture and other cultural aspects all play a role in how cross-national differences in internet use and exposure to online risks continue to exist while evolving constantly (Livingstone & Haddon, 2009). Building further on the threefold classification of "high use, high risk", "medium use, medium risk" and "high use, medium risk" countries by Livingstone et al. (2011), we look at the potential impact of a country's profile, in terms of daily internet use and exposure to at least one online risk, on the risk of harm associated with internet use.

In sum, this article aims to provide more insights in the relative impact of individual, social and country context factors on children's online resilience, i.e. being capable of using adequate coping strategies so as to avoid feelings of being bothered or upset (i.e. harmed) after exposure to online risks.

This brings us to the following research questions:

(RQ1) Which children are more likely to use which coping strategies, and which children feel more upset after a negative online experience? We hypothesise that girls, younger children, children from lower SES families, children with low self-efficacy and more psychological difficulties, and intensively harmed children are the most vulnerable groups.

(RQ2) How do parents, teachers and peers mediate children's internet use? We hypothesise that parents favour mediation approaches, but that restrictions continue to be common practice. We expect peers to interfere regularly in each other's online activities, and teachers to provide support related to online safety.

(RQ3) What is the impact of children's individual characteristics (i.e. socio-demographics, psychological characteristics and digital literacy) and social context on their use of coping strategies? We hypothesise that supportive mediation from a child's social network results in being more resilient online, and that digital literacy is an important predictor for proactive coping.

(RQ4) In which countries do children feel more upset after a negative online experience? As resilience involves learning from one's mistakes, and develops through exposure to

risks or adversities, we expect that children will experience less harm in “high use, high risk” —countries.

Operationalisation of the Concepts

Online resilience is defined as being more problem-focused and using coping strategies that invoke positive emotions (Billings et al., 2000; Coleman & Hagell, 2007). Our take on the concept refers to the ability to display proactive coping strategies, and a lower intensity of negative emotions, namely feeling upset or harmed.

For more detailed information on the operationalisation of the concepts described below, we refer to Livingstone et al. (2011).

- Coping strategies

For each type of risk, eight different coping strategies are included in the analysis: hope the problem would go away, stop using the internet, talk to somebody, try to fix the problem, delete the message, block the sender, change privacy or contact settings, and report the problem to the internet provider. For each risk separately, the eight strategies are entered into a two-step cluster analysis using the log-likelihood method, in order to discover different patterns of coping. The number of clusters is calculated based on the Schwarz Bayesian criterion. After performing each cluster analysis ten times, systematically altering the added random variable, the most stable cluster outcome is selected for further analyses. For coping with unwelcome sexual content, two clusters are found. The first cluster can be labelled as *passive* ($n = 218$) with only a minority of children talking to somebody, while refraining from all other strategies. The second cluster is labelled as *proactive* ($n = 560$): these children deploy the whole range of strategies, “talking to somebody” remaining the most popular one. As to coping with disturbing sexting messages, the results are stable across the ten randomisations, and two clusters emerge. The first is the *passive cluster* ($n = 157$), because these children refrain from problem-solving strategies, and are more likely to simply hope the problem will go away. If they nevertheless decide to do something, they will most probably talk to somebody. The second cluster can be described as *proactive* ($n = 293$): these children are willing to use problem-solving strategies (i.e. try to fix the problem, delete messages, block the sender, change settings, report the problem), and are not reluctant to talk to somebody about the problem. In contrast, the cluster analysis results for coping with online bullying are not consistent at all: very different cluster outcomes that are difficult to interpret emerge, ranging from two till nine clusters. Due to lack of meaningful clusters, the eight different coping strategies in reaction to being bullied online are dealt with separately.

- Intensity of harm

The intensity of harm is measured by the strength of the negative feelings (“how upset did you feel”, four-item scale) and the duration of negative feelings (“how long did you feel like that for”, four-item scale), using the standardised scores and calculating the mean of these two indicators ($M_{\text{sexualcontent}} = .24$, $SD = .16$, $N = 785$) ($M_{\text{onlinebullying}} = .35$, $SD = .23$, $N = 1056$) ($M_{\text{sexting}} = .26$, $SD = .16$, $N = 515$).

- Digital literacy

Digital literacy is based on the total number of online activities (maximum seventeen activities) and the total number of online skills (maximum eight skills). Calculating the

mean of the standardised scores of these variables, we obtain a digital literacy variable ($M = .28$, $SD = .24$).

- Socio-demographics

Gender (49.6 per cent girls and 50.4 per cent boys), age ($M = 12.63$, $SD = 2.25$), and socio-economic status (SES) are included as socio-demographic variables in the analysis. We distinguish three SES categories (1=low SES, 2 = medium SES and 3 = high SES ($M = 2.00$, $SD = .75$)).

- Psychological characteristics

Our indicators for a child's psychological status are self-efficacy and personal difficulties. Self-efficacy refers to feeling confident in one's ability to solve problems and handle difficult situations, measured by four items ($M = 2.16$, $SD = .48$, $\alpha = .68$). Personal difficulties includes emotional problems ($M = 1.14$, $SD = .39$, $\alpha = .67$), peer problems ($M = 1.36$, $SD = .33$, $\alpha = .44$) and conduct problems ($M = 1.40$, $SD = .32$, $\alpha = .49$). Each of these is measured by five items using a three-point scale where 1 = not true and 3 = very true.

- Parental mediation

For each type of parental mediation, we calculated the total number of mediating activities the parents did according to their child. This results in a score between zero and the total number of items for each type of parental mediation: mediation of internet use (five items, $M = 2.56$, $SD = 1.68$), mediation of internet safety (six items, $M = 3.28$, $SD = 2.08$), monitoring of internet use (four items, $M = 0.99$, $SD = 1.24$), monitoring of internet safety (four items, $M = 1.27$, $SD = 1.24$), and restrictions from parents (six items, $M = 3.07$, $SD = 2.18$). We analyse the answers from the children because their perception of parental mediation might be different from what their parents intend, and because we expect some over-reporting on the part of the parents owing to social desirability concerns.

- Parental internet use

The frequency of internet use by the parents is included in the regression model, with 0 = never and 2 = (almost) daily ($M = 1.25$, $SD = 0.82$).

- Teacher support and peer support

The total number of mediating activities is used in the analysis; for teacher support eight activities were included ($M = 3.92$, $SD = 2.82$), and five activities for peer support ($M = 2.09$, $SD = 1.80$).

- Country classification

Based upon daily internet use and exposure to at least one online risk, Livingstone et al. (2011, p. 139) distinguished a threefold country classification of "high use, high risk" countries, "high use, medium risk" countries, and "medium use, medium risk" countries. Countries characterised by "high use, high risk" are Estonia, Lithuania, Norway, Sweden, Czech Republic, Denmark, Finland, Slovenia, The Netherlands, Romania and Bulgaria. The group of "high use, medium risk" countries includes Belgium, the United Kingdom, Poland and Cyprus. Finally, the "medium use, medium risk" group consists of Austria, France, Germany, Hungary, Ireland, Spain, Greece, Italy and Portugal. Turkey is the only

country where both daily internet use and exposure to online risks is below 40 per cent ("low use, low risk"), and is therefore classified as an outlier and not included in the analyses.

The three online risks focused on are sexual content, online bullying and sexting; all three are relevant on the public agenda. The first EU Kids Online study concluded that these risks needed profound cross-national investigation. Moreover, these risks provoke negative feelings among a substantial number of children (Livingstone & Haddon, 2009). Exposure to sexual content can occur accidentally or intentionally. Here no distinction is made, since both ways of exposure can provoke feelings of discomfort. As to online bullying and sexting, only online communication (i.e. communication via the internet) is taken into account. Because the study wanted to measure the use of online proactive coping strategies, mobile phone communication through SMS or MMS is beyond the scope of this research. However, boundaries are blurring with the upcoming use of smart phones.

Results

This section describes how individual characteristics, the social environment and country context have an impact on children's use of coping strategies and the intensity of feeling upset after a harmful experience online. This should give us insight into which groups are less resilient in which situations, and how online resilience can be fostered. Using weighted data from the EU Kids Online II survey, we first provide a descriptive analysis of the individual characteristics and social environment (i.e. mediation from parents, teachers and peers) in relation to children's use of coping strategies and the intensity of feeling upset. In the second part, a logistic regression analysis is performed in order to reveal the explanatory power of each of the predictors for the coping strategies under study. Finally, we take a look at differences across Europe.

RQ1: Which coping strategies are used, and which children feel more upset after a negative online experience?

Across all risks, and across all children, talking to somebody is the most popular coping strategy. Girls are more communicative than boys, no matter what type of risk they are confronted with. When confronted with unwelcome sexual messages (sexting), two in three girls (66 per cent) will talk about this, compared to only about half of the boys (48 per cent). A similar trend is visible for online bullying (85 per cent versus 67 per cent) and for seeing disturbing sexual content (56 per cent versus 50 per cent). In terms of sexting (see Table 1), girls are more likely to be proactive (75 per cent versus 58 per cent), while boys remain rather passive (42 per cent versus 25 per cent). Girls feel also more upset in the case of online bullying and sexting (see Table 2).

Children below the age of 12 are more communicative, at least in the case of a negative experience related to sexual risks. This younger age group is also more likely to go offline when feeling upset after exposure to sexual images or being a victim of online bullying. As children grow older, more of them will change their privacy or contact settings when confronted with online bullying. While sexual risks provoke more harm among the younger children, online bullying results in more intense feelings of harm among the 15-to-16-year-olds.

TABLE 1
Use of coping strategies among those feeling bothered by sexual images, sexting, and online bullying (percentages)

	SEXUAL IMAGES			SEXINT		ONLINE BULLYING						
	Passive (n = 218)	Proactive (n = 560)	Passive (n = 161)	Proactive (n = 348)	Hope the problem goes away (n = 1177)	Stop using the inter- net (n = 1290)	Talk to some body (n = 1273)	Try to fix the problem (n = 1177)	Delete message (n = 1290)	Block the sender (n = 1290)	Change setting (n = 1290)	Report problem (n = 1290)
Boys	30	71	42 ^c	58 ^c	18 ^c	19	67 ^c	30 ^c	39	43	20	11 ^a
Girls	27	73	25	75	—	20	85	41	43	48	17	7
Age 9–10						41 ^c	78 ^a	—	37	34 ^a	10 ^b	9 ^a
11–12	29	71	30	70	23	24	76	27 ^c	43	43	14	13
13–14	30	70	37	63	21	16	82	43	42	50	19	9
15–16	27	74	28	72	26	14	74	36	40	47	22	7
SES Low	23	73	36 ^c	64 ^c	25	25 ^b	74 ^b	47 ^c	52 ^c	52	25 ^b	9
Medium	31	69	36	64	25	21	82	34	38	44	17	8
High	27	77	17	83	21	16	73	33	36	44	14	10
SE Low	16 ^c	84 ^c	40	60	20 ^c	47 ^c	71	42 ^c	52 ^b	37	30 ^c	21 ^c
Medium	38	63	32	68	31	17	77	29	44	46	14	5
High	22	78	30	70	16	18	78	44	36	47	21	11
PD Low	32	68	25	75	15 ^c	12 ^a	80 ^a	35	41	50	25	6 ^a
Medium	30	70	37	63	17	18	81	34	38	48	18	9
High	26	74	30	70	30	22	74	38	43	44	17	9
DL Low	34 ^b	67 ^b	57 ^c	43 ^c	23	24 ^a	72	28	40 ^b	14 ^b	11 ^b	8
Medium	34	66	35	66	24	17	79	39	35	26	19	8
High	23	77	23	77	24	16	77	37	46	26	21	10
Harm Low	38 ^c	62 ^c	34 ^b	66 ^b	15 ^c	7 ^c	61 ^c	19 ^c	33 ^c	40 ^b	9 ^c	6 ^a
Medium	21	79	40	60	28	19	83	39	42	50	19	9
High	16	84	21	79	27	26	87	50	50	52	29	11
TOTAL	28	72	32	68	24	20	77	36	41	46	18	9

χ²-test; ^a = p < .05; ^b = p < .01; ^c = p < .001

SE: self-efficacy, PD: psychological difficulties, SS: sensation seeking, DL: digital literacy, Harm: intensity of harm
The number of children bothered by meeting online contacts was too low to conduct valid χ²-analysis on coping strategies.

TABLE 2
Percentage of children with high intensity of harm (feeling upset more strongly and for a longer period of time)

	High intensity of harm (%)		
	Sexual images (n = 785)	Online bullying (n = 1056)	Sexting (n = 515)
Boys	24	23 ^c	27 ^a
Girls	28	39	34
Age 11–12	38 ^c	29 ^b	45 ^c
13–14	26	29	30
15–16	19	37	26
SES Low	28 ^b	43 ^c	30
Medium	26	32	38
High	25	26	24
SE Low	23 ^b	49 ^b	48 ^b
Medium	31	32	31
High	22	31	29
PD Few	11 ^c	20 ^c	27 ^b
Moderate	22	30	28
A lot	32	37	35
DL Low	42 ^c	33	36
Medium	22	35	28
High	21	31	32
TOTAL	26	33	31

X²-test; ^a = p < .05; ^b = p < .01; ^c = p < .001.
SE: self-efficacy, PD: psychological difficulties, SS: sensation seeking, DL: digital literacy
The number of children bothered by meeting online contacts was too low to conduct valid X²- analysis on coping strategies.

When being bullied online, lower SES children are more likely to fix the problem, delete unwelcome messages, and change their privacy or contact settings. When disturbed by sexual images, children from different socio-economic backgrounds do not respond differently. This finding differs from previous studies, which present children in less affluent families as less resilient online (Paus-Hasebrinck & Bichler, 2008; Peter & Valkenburg, 2006; Vandoninck et al., 2012). However, lower and middle-class children who received an upsetting sexting message do respond more passively. Moreover, as to online bullying, lower SES children indicate more intense feelings of being upset and tend to go offline more often, which is interpreted as a sign of less resilience online.

In the case of disturbing sexual images, low self-efficacy is related to being more proactive. Children with moderate self-efficacy are the most passive group. Among the victims of online bullying, low self-efficacious children are more motivated to delete unwelcome messages, to change privacy or contact settings and to report the problem on a website. However, children with low self-efficacy also stop using the internet more often after being a victim of online bullying (47 per cent versus 18 per cent), and those with more psychological difficulties are more likely to hope the problem will disappear by itself (30 per cent versus 15 per cent) and go offline for a while (22 per cent versus 12 per cent). Moreover, the intensity of feeling upset is higher among children with little self-efficacy and personal difficulties such as emotional problems, peer problems, conduct problems.

Deleting an unwelcome message and blocking a sender require a certain level of online competences, which reflects the finding that a higher level of digital literacy facilitates the use of online coping strategies. This holds for the three risks under study. While 67 per cent of the children with low digital literacy are proactive after seeing disturbing sexual images, this amounts to 77 per cent for those with a high level of digital literacy. Similar results are found for children with a negative sexting experience (43 per cent versus 77 per cent). Victims of online bullying with a high level of digital literacy are also more likely to delete unwelcome messages, to block the sender and to change their privacy settings. Children with few digital skills will rather go offline for a while after being bullied online.

Children who feel harmed more intensively after exposure to sexual risks (seeing sexual images or receiving sexting messages) are more likely to respond proactively. Victims of online bullying who feel harmed more intensively deploy any type of coping strategy, active or passive, more often compared to victims who feel less upset about what happened.

RQ2: How do parents, teachers and peers mediate children's internet use?

Overall, a majority of parents intervene by mediation (86 per cent) and restrict at least one type of online activity (85 per cent), i.e. most often the disclosure of personal information (65 per cent). As to mediating internet use, talking to the child about what he or she does online is the most popular approach (70 per cent). When it comes to mediating online safety, about two in three parents explain why a given website is good or bad (68 per cent) and help their child when something is difficult to do or find on the internet (66 per cent). Three in four parents monitor their children's internet safety and half of them keep an eye on their internet use. In the latter case, the most frequently used technique is checking which websites the child has visited (46 per cent).

About eight in ten children report receiving support from their teacher. While teachers are most likely to mediate in terms of setting ground rules for internet use (62 per cent), they are frequently involved in helping the child to do or find something on the internet (58 per cent), explaining why some websites are good or bad (58 per cent), and suggesting safe ways to use the internet (58 per cent). A majority of children receive support from their peers (73 per cent). With regard to difficult online tasks or searches, children are most likely to seek help from one another (64 per cent).

RQ3: What is the impact of children's individual characteristics and social context on their use of coping strategies?

In order to explain how children cope after having a harmful online experience, a logistic regression analysis was conducted. Individual characteristics (i.e. socio-demographics, psychological characteristics, digital literacy, and intensity of harm) and social context variables were entered in the regression model. For sexual content and sexting, the analyses were conducted with passive and proactive coping as dependent variables. As for online bullying, the coping strategies could not be clustered in a meaningful way, the logistic regression was conducted for each coping strategy separately (see Table 3).

When looking at sexual content and sexting, girls and boys are equally likely to respond proactively. Girls are more likely to talk about the problem, regardless of what type

TABLE 3
Predictive values of individual characteristics, social context, and digital literacy for coping strategies with online risks

	SEXUAL CONTENT						SEXTING						ONLINE BULLYING																				
	Passive coping (n = 584)			Proactive coping (n = 584)			Passive coping (n = 356)			Proactive coping (n = 356)			Hope problem goes away n = 865			Stop problem (n = 850)		Talk to somebody (n = 840)		Try to fix the problem (n = 865)				Delete message (n = 850)		Block sender (n = 850)		Change setting (n = 850)		Report problem (n = 850)			
	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)	B	exp (b)			
Gender																																	
Age																																	
SES	.43b	1.53	-.43b	.65																													
Self-efficacy	-.60a	.55	.60a	1.83																													
Psychological difficulties	-1.06a	.35	1.06a	2.89																													
Digital literacy																																	
Intensity of harm	-2.66b	.07	2.66b	14.31																													
Peer support																																	
Teacher support																																	
Mediation																																	
Internet use																																	
Mediation internet																																	
Internet safety																																	
Restrictions																																	
Monitoring internet use	.21b	1.24	-.21b	.81																													
Monitoring internet safety	-.61c	.55	.61c	1.83																													
Parental internet use																																	
Nagelkerke R ²	.23		.23				.19		.19		.19		.16		.19		.19		.28		.28		.09		.09		.13		.13		.06		.13

a = p < .05; b = p < .01; c = p < .001

B = unstandardized coefficients

exp(b) = proportionate change in odds(> 1: positive relationship, < 1: negative relationship), empty cells = no significant predictor

of risk is upsetting them. Age turns out to be less important in this model: although younger children are still more likely to stop using the internet after being bullied online, they also more often delete painful messages or block their bully. Children from higher-class families tend to be passive when sexual images have upset them. For online bullying, a different pattern emerges: children in more affluent families more often want to fix the problem, and change their privacy or contact settings. Self-efficacy and psychological difficulties are found to play a crucial role in terms of being proactive, at least when it comes to disturbing sexual content and online bullying. As to sexual content, self-efficacious children are also more proactive. Being a victim of online bullying, the latter will more often try to fix the problem and change their contact settings, and are less likely to hope the problem will spontaneously disappear. Children with psychological difficulties respond proactively when confronted with disturbing sexual images. These children seem to struggle more with online bullying, as they more often stop using the internet and hope the problem will go away by itself. Moreover, psychologically troubled children are less likely to talk about their being bullied online.

Digital literacy mainly has an impact on the use of coping strategies that should solve the problem. Highly digitally literate receivers of unwelcome sexting messages tend to respond more proactively. When being bullied online, a higher level of digital literacy facilitates the use of online coping strategies, i.e. deleting messages and blocking senders.

Peer support seems to enhance proactive coping, at least in the case of contact risks. For victims of online bullying, children who receive more support from their peers are more likely to delete the message and to change their privacy or contact settings. Children who received unwelcome sexting messages also tend to cope in a proactive way.

Support from teachers has little impact on children's coping strategies. The few significant outcomes suggest even the opposite of the expected, with victims of online bullying receiving little teacher support and being less likely to delete unwelcome messages and change their settings.

As to parental restrictions, limiting the internet access of a child that is feeling disturbed after viewing sexually explicit images will result in more passive coping. As children are more restricted in their internet use, they will even develop a tendency towards going offline for a while after being bullied online.

The results for parental mediation and monitoring are not straightforward. It is concluded that monitoring children's internet safety is related to more proactive coping in case of disturbing sexual content, and it facilitates talking to somebody and reporting the problem on a website after being bullied online. In contrast, victims of online bullying are more likely to refrain from internet use and are less likely to delete disturbing messages and change their settings when their internet safety is closely monitored by their parents. Mediation of internet safety results in less contradictory findings: more mediation leads to more proactive coping among those who have had a negative sexting experience, and a higher tendency of talking to somebody and block the sender among the victims of online bullying.

The frequency of parental internet use does not significantly impact on children's coping strategies for sexual content and sexting. However, if the parents are limited internet users, children are more likely to stop using the internet for a while after online bullying. At the same time, these kids more often report the problem online, and they are less likely to hope the problem will disappear of itself.

TABLE 4
Percentage of children with high intensity of harm per country profile (feeling upset more strongly and for a longer period of time)

	High intensity of harm (%)		
	Sexual images (n = 777)	Online bullying (n = 1082)	Sexting (n = 449)
High use - high risk	24	19 ^c	31
High use — medium risk	24	28	30
Medium use - medium risk	30	31	30
TOTAL	26	25	31

χ^2 -test, ^a = $p < .05$, ^b = $p < .01$, ^c = $p < .001$.

RQ4: In which countries do children feel more upset after a negative online experience?

As to disturbing sexual content, no significant differences were found between the three types of countries ($F = .66$ (2), $p > .05$); children in “medium use, medium risk” countries feel the same intensity of harm as children in countries where internet use and/or exposure to online risks are higher. The same conclusion holds for sexting ($F = .23$ (2), $p > .05$). Online bullying reveals another story. Feelings of being upset after being bullied online are less intense in countries with a “high use, high risk” profile ($F = 8.84$ (2), $p < .001$). Only the “high use, high risk” group differs significantly from the other types of countries. Between “high use, medium risk” and “medium use, medium risk” countries, no significant differences were found (see Table 4). This shows that when both daily internet use and exposure to online risks are high, children seem to be harmed less intensively by online bullying.

Conclusion

We conclude that there is no one-size-fits-all solution for increasing a child’s online resilience. First, we investigated which children use which coping strategies, and which children feel more upset after a negative online experience. Our results indicate that children struggling with low self-efficacy and psychological difficulties offline are also more vulnerable online, as they feel harmed more intensively. Being self-efficacious is also related to more proactive coping responses. Although girls and younger children experience more harm, they are more likely to talk to somebody about the problem. Lower-class children are not necessarily more vulnerable online, as they are more likely to respond proactively when confronted with disturbing sexual images. Next, we analysed how children’s internet use is mediated by parents, teachers, and peers. Parents indeed favour a mediating approach, although it is often combined with some restrictions. Being restrictive does not enhance a child’s online resilience. However, the benefits of mediation of internet use and safety could not be confirmed. Peers indeed discuss and interfere often in each others’ online activities, but the effects of peer support could not be confirmed for every online risk. Teachers could provide more support, as their mediation is lower than expected. The regression analyses confirm the importance of digital literacy for the use of online coping strategies (i.e. delete messages and block the sender). As some age effects disappear with taking digital literacy

into the model, this suggests that digital literacy skills help (young) children in protecting themselves from online risks.

Finally, we took a look at differences between the three categories of countries. Again, the results are very risk-specific. No differences were found among children who were bothered by sexual images or sexting messages. However, for online bullying, in countries characterised by high daily internet use and high exposure to online risks, children are less susceptible to intense feelings of harm when being bullied online. This could be related to the hypothesis that resilience develops gradually through exposure to adversities. Possibly because exposure to online risks is more common in countries characterised by high use and high risk, children may be more encouraged to take up coping strategies that give them emotional support and/or solve the problem.

Girls are more susceptible to the harmful effects of sexual risks. However, girls are more talkative than boys, no matter what type of risk they are confronted with, possibly because behaviours and feelings that suggest vulnerability are less accepted among boys. The persons girls talk to could be advised to steer them towards strategies aimed at solving the problem. A similar approach could be used with other less resilient groups (the younger children, those low on self-efficacy): talking about the problem is often the first step in reaching a suitable solution. This highlights the importance of open communication both at home and at school.

Younger children are found to be less resilient online, in the sense that they are more likely to go offline and experience more harm. Nevertheless, their online presence is huge and on the rise. Age effects are reduced with the introduction of social context variables and digital literacy in the model, so it is advisable to start teaching digital skills in both a formal and informal atmosphere from an early age.

Although a *lower SES* is related to lower parental internet use, children from lower class families are not necessarily more vulnerable online, as they seem to be willing to solve the problem, especially when confronted with online bullying. However, the impact of SES on children's online resilience is rather limited. This might be related to the conclusion that differences among social classes are moderate when it comes to parental mediation. In all social strata parents seem to be concerned about their children's online activities. However, analyses at national level might result in a different picture. It could be argued that in some countries, SES still plays a significant role in children's online resilience (Livingstone et al., 2011).

Self-efficacy turns out an important marker, especially for online bullying: self-efficacious children think more in terms of solving the problem. This indicates the existence of a relationship between offline and online resilience and the so-called double jeopardy effect (Vandoninck et al., 2012). Possibly, these children feel more confident in defending themselves against their bullies.

Children who feel *harmed more intensively* respond more proactively when confronted with disturbing sexual images and sexting messages. This indicates that children with strong negative emotions do not necessarily remain passive. On the contrary, they seem to be more motivated to actually do something about the problem. In the case of online bullying, children with intensive negative emotions deploy any type of coping strategy more often. This outcome suggests that other characteristics will determine which coping strategies a victim of online bullying will turn to.

Parents should realise that restricting online activities is likely to be counter-productive. Indeed, not only this approach reduces children's tendency to respond

proactively after receiving upsetting sexual content, it also leads to going offline among victims of online bullying. Depending on the type of risk, a monitoring or mediating approach will do more for the child's online resilience. Yet, the results are not straightforward, and further investigation into different types of parental mediation and monitoring is necessary. Because of the ambiguous results, we suggest a risk-specific exploration of the relationship between parental mediation and online resilience. The results confirm that parents are open to active and communicative mediation (Livingstone & Helsper, 2008), and that there is a general willingness among (most) parents to be involved in their children's internet use.

Because children in families with *poor parental internet use* are less resilient to online bullying, as they respond more by stopping to use the internet or hoping the problem would go away by itself, it is also important to continue promoting internet access and use among adults. Parents who are frequent internet users themselves may feel more confident in guiding their children on the world wide web (Facer, Furlong, Furlong, & Sutherland, 2003; Livingstone & Bober, 2006; Livingstone & Helsper, 2008). As to future research, a more detailed measure of parental level of digital literacy could help to further investigate the impact of parental internet use on children's online resilience.

Children who receive *support from friends and classmates* seem to be more resilient, as they are more willing to be proactive when confronted with upsetting sexting messages, and more likely to resort to deleting the message and changing their settings after being bullied online. However, since the beneficial impact of support from friends and classmates could not be confirmed for all types of risks, the circumstances under which young people tend to encourage one another to adopt proactive coping strategies should be investigated further. For example, the importance of (social) media and internet-related activities in the peer group can mediate young people's online resilience (Eynon & Malmberg, 2011). Additionally, a factor analysis on a broader set of peer-mediating activities could lead to new insights.

Teachers are in a position to mediate young people's online resilience, as they can teach them online proactive strategies and offer an opportunity to talk about disturbing experiences. However, this is not confirmed by our analysis. It may be that due to insufficient digital skills, teachers fail to suggest such strategies (Nycyk, 2011; Prendes et al., 2010). It is recommended that schools and teachers be encouraged to provide more active support where children's internet use and safety are concerned. Also, in our analysis, all types of mediation by teachers were reduced to one variable: a factor analysis on a broader set of mediating activities by teachers is recommendable.

Discussion

In this article online resilience is conceptualised as the ability to display proactive coping strategies, and a lower intensity of negative emotions (i.e. feeling upset or harmed). However, our results indicate that a high intensity of harm is connected to proactive coping, especially in the case of sexual risks. Children who feel more harmed by online risks seem to be more motivated to do something about the problem. Hence, awareness raising on proactive coping strategies among emotionally more vulnerable children might have beneficial effects. We can expect that more internet use and more exposure to online risks do not result in more harm, as children in countries with a "high use, high risk" profile feel less upset when confronted with online risks. It seems that high-risk exposure leads to some

habituation, in a sense that negative feelings become less intense. Further research on the middle and long-term effects of proactive coping strategies should shed new light on how subsequent risk exposures influence children's feelings and behaviours.

The cluster analysis on the eight different types of coping strategies resulted in a valid outcome for sexual images and sexting. As these two risks both involve a sexual aspect that is not appreciated by the receiver, it is not surprising that similar clusters of coping responses have emerged. In contrast, online bullying clearly is a different type of online risk, which children seem to respond very differently to. A large majority (77 per cent) talks to somebody when being bullied online, often combined with a range of other coping strategies (Lampert & Donoso, 2012), without a clear pattern emerging. Compared to the other two online risks under study, online bullying also provokes most harm, with 60 per cent of the victims being fairly or very upset (Lampert & Donoso, 2012). Because of the stronger negative impact on children's feelings, their responses might be different. Another possible reason for the absence of a pattern is that online bullying occurs less than the other two; patterns in coping behaviour are more likely to take shape after multiple exposures. Hence, in the quest for underlying coping patterns, more profound investigation into the different types and aspects of online bullying is recommended.

As (online) coping is by definition risk-specific, future research could include other online risks, for example risks related to social network sites and privacy issues. The impact of psychological characteristics and social context could also be explored further, including indicators of life satisfaction, the quality of family relationships as well as family composition. Finally, additional socio-demographic factors could include the child's scholarly competences and education level. The latter was very difficult to compare across the countries, and was therefore not included in the analyses. However, at the national level it is strongly recommended that education level be incorporated in the regression model as an indicator of scholarly competences. Because of the subsamples sizes, cross-national comparisons were limited to country profiles in terms of internet use and exposure to risk associated with the internet. Comparisons for each country separately could be interesting for national policymakers, but in that case additional data collection in (a selection of) these countries (e.g. from the "medium use, high risk" group), with an emphasis on vulnerable children, would be recommendable.

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Sofie Vandoninck (author to whom correspondence should be addressed), is a junior researcher at the Institute for Media Studies at the University of Leuven, Belgium. She is interested in young people's internet use and how online risks and opportunities are perceived and experienced by youngsters. She is currently preparing a PhD on vulnerable children online. E-mail: sofie.vandoninck@soc.kuleuven.be

Leen d'Haenens is Full Professor at the Institute for Media Studies, University of Leuven, Belgium. Her main research interests include media policy and governance, minority ethnic adults' and young people's (new) media use and diversity as a quality criterion of media contents. E-mail: leen.dhaenens@soc.kuleuven.be

Keith Roe is Full Professor and Head of the School of Mass Communication Research at the University of Leuven, Flanders, Belgium. He obtained his PhD from the University of Lund, Sweden in 1983 and has also spent periods as a Visiting Professor at the University of Amsterdam, The University of Chapel Hill at North Carolina, The Annenberg School for Communication at the University of Pennsylvania, and Princeton University. His research interests include the sociology of the media, media effects, and the relationship between education and the media. E-mail: keith.roe@soc.kuleuven.be