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A comparison of the reports by Dutch parents and children

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This article empirically examines if parents apply new types of mediation for the internet, using data from the Dutch EU Kids Online project. The high internet penetration in the Netherlands makes this study especially relevant because almost all parents and children use the internet. Factor analyses applied to reports by parents and children (aged 9 – 16) revealed four mediation types that are comparable for both groups: active safety mediation, restrictive content mediation, restrictive technical mediation, and monitoring. Demographics (age, gender, education, family size), measures of internet usage, and parental views towards internet use were analysed as determinants of the parental mediation types. Parents monitored younger children in particular, more often actively mediated girls and more often restricted children's internet use in larger families. The use of virtually all mediation types was related to children's diversity in internet use and the parents' view on the benefits of their involvement.

KEYWORDS   parental mediation; internet use; children; parents; determinants

Introduction

Parents, the most influential people in the development and socialization of children, carry the primary responsibility for guiding their children's media behaviour. Parental mediation of children's internet use involves maximizing benefits and, particularly, minimizing potential negative impact (Kirwil, Garmendia, Garitaonandia, & Fernandez, 2009; Livingstone & Helsper, 2008). Mediation research has focused especially on children's television viewing, whilst only a handful of studies have empirically researched types of internet mediation (e.g. Livingstone & Helsper, 2008). Since children's use of the internet both in time and type of activities is rapidly evolving, it is crucial to determine how parents mediate their children's internet use. Using an identical questionnaire we surveyed both children and parents about the prevalence of mediation practices at home. This enabled us to empirically investigate which mediation strategies parents use to manage their children's online behaviour, and to study the degree of correspondence on mediation within the family. We also examined determinants of the mediation strategies. We analysed data from the Dutch EU Kids Online project. Since almost 100 per cent internet penetration has been achieved in the Netherlands, we expect that all parents have at least some degree of experience with internet mediation, resulting in a grounded view on mediation practices among all children and parents.

Types of Mediation

Most studies on parental guidance of television viewing and video gaming distinguish three separate mediation strategies (Nathanson, 2001; Nikken & Jansz, 2006;

van der Voort, Nikken, & van Lil, 1992; Valkenburg, Krcmar, Peeters, & Marseille, 1999). First, *active mediation* consists of talking about the media content accessed by the child. It includes positive and negative as well as instructional and critical or normative interventions. Talking may help the child to use the media consciously, although the parent's interference may also backfire, for example, by unintentionally raising interest in forbidden video games (Nikken & Jansz, 2007). Second, *restrictive mediation* involves setting rules that restrict the use of the medium, including restrictions on location, specific content (such as violence or sex), or time. Restrictions may help prevent compulsive media use (van den Eijnden, Spijkerman, Vermulst, van Rooij, & Engels, 2010). Third, *co-using* involves sharing the media together with the child but without critically commenting on the content or its effects. Co-use is related to positive emotional and cognitive experiences for children (Lee & Chae, 2007; Nikken, Jansz, & Schouwstra, 2007) but may also result in the acceptance of media violence (Nathanson, 1999).

It is not yet clear whether the trichotomy of parental mediation is also applicable to internet use. Using media has increasingly become a solitary activity for all household members, either in separate spaces, including children's bedrooms, or on mobile platforms (Kennedy & Wellman, 2007; Rideout, Foehr, & Roberts, 2010). This individualization can conceivably problematize mediation, as it is difficult, if not impossible, for parents to apply active mediation or to engage in co-use under these circumstances. Applying restrictive mediation is also less straightforward on mobile devices. The mass media may amplify moral panic in parents by reporting mainly ad hoc incidents linked to online risks (e.g. pornography, cyberbullying, grooming). Such media reports might influence parental attitudes towards the internet and increase their worries, including concerns about their personal lack of skills to cope with risks (Kehily, 2010; Kitzinger, 2004). In the light of the increased individualization and the media emphasis on the consequences of risks for children, parents may lose confidence in the types of mediation they habitually apply and may look for new strategies. Furthermore, the complexity of the internet as a focus for multiple activities, incorporating video content for passive exposure, as well as being a venue for social interaction, active content production, and entertainment use, could create a serious problem for parents on how to guide their children in all these activities.

Several studies corroborate the supposition that these mediation styles are also applicable to internet use (Kirwil, forthcoming; Lee & Chae, 2007; Lwin, Stanaland, & Miyazaki, 2008). These studies, however, did not empirically investigate the underlying factors that explain the data. Instead, the researchers generally followed a deductive approach, in which items or scales were drawn from television research and used in an adapted form to measure a priori defined styles of internet mediation.

Results from the empirical study by Livingstone and Helsper (2008) strongly suggest that the theory on parental mediation should be expanded to cover internet mediation. In an exploratory factor analysis, they found four types of parental mediation that differed from the three types identified earlier. First, *active co-use* referred to activities that would have been categorized as active mediation, restrictive mediation, or co-use for traditional media. The researchers surmised that co-use for the internet was by definition active or restrictive, because conversations with the child were more probable than whilst watching television or playing games. Second, *interaction restrictions* encompassed bans on activities by means of which children kept in touch with others (in particular, peer-to-peer online interactivity). Third, *technical restrictions* included the installation of various filters and monitoring software on the computer. As Eastin, Greenberg, and Hofschire (2006) had

already shown, this could be an internet-specific type of mediation, because child locks, filters or monitoring software are not (yet) commonly used by parents for television sets or games consoles. Finally, *monitoring* referred to the strategy of checking children's online activities afterwards, such as e-mail messages sent or websites visited.

Although Livingstone and Helsper (2008, p. 590) constructed mediation scales based on a factor analysis, they also noted that further research was necessary because their factor loadings were not entirely consistent. Following their call for replication and using sound analysis, this article contributes to the ongoing research on parental mediation, empirically investigating for the Netherlands which factors underlie mediation strategies for internet use. Although Livingstone and Helsper did not give a reason for their inconsistent factor matrix, it is conceivable that at the time they collected their data (around 2004) parents in the UK were still developing their mediation styles. Social networking was not yet very popular among young people, and not all UK households had access to the internet: in 2004, 56 per cent of UK households had internet access (Demunter, 2005). At present, unlike many other countries, the penetration and use of internet among young people and their parents in the Netherlands is almost 100 per cent (Livingstone, Haddon, Görzig, & Ólafsson, 2011), making it a leading country in Europe for internet penetration. Consequently, the outcomes are almost unaffected by people who do not use the internet. Moreover, the digital inclusion of parents also implies that they will have acquired digital skills and developed a broad array of online practices. During this process of domestication of new technology (Silverstone & Hirsch, 1992), parents have also developed various mediation styles, including communicative and active styles of mediation (Duimel & de Haan, 2007). Dutch parents rank among the highest in Europe to employ active internet mediation styles, whereas for restrictive mediation and monitoring they have average scores, and for using parental controls they fall somewhat above the European average (Livingstone et al., 2011).

Based on the assumption that Dutch parents have now integrated the mediation of their children's internet use more solidly into their daily parenting practices, our first research question was:

RQ1:   Which mediation strategies are used by parents when they mediate the internet use of their children?

Dissimilarity Between Parents and Children

Previous television and video game research has shown that children and their parents usually agree on the types of mediation they identify but differ in the amount of mediation they perceive; parents usually report more involvement than their children (Koolstra & Lucassen, 2004; Nikken & Jansz, 2006; van der Voort, van Lil, & Peeters, 1998). Several explanations are conceivable here. First, parents may exaggerate their interventions in order to comply with norms of socially desirable behaviour, whilst children may minimize parental mediation for reasons of peer status (van der Voort et al., 1998). This explanation is not sufficient, however, because the differences between parents and children can vary significantly per type of mediation (Koolstra & Lucassen, 2004). Second, the difference may be due to the characteristics of children's media use and modern family life. Teenagers increasingly tend to use media out of sight of their parents, either in their bedroom or with their peers (Livingstone & Bovill, 2001). When it comes to the internet and other contemporary media, parents in particular are often not aware of what their children do

with these media and are often not actively involved in the online communication applications with which their children are familiar (Duimel & de Haan, 2007). Third, varying opinions about "appropriate" or risky media content and behaviour may exist. Compared to children, parents are generally less aware of the content of games, television programmes, and children's online activities, which may lead to more concerns about unwanted media effects and a greater need to apply mediation (Livingstone & Bovill, 2001; Nikken & Jansz, 2006). Media reports about internet risks and incidents that happened to children due to internet use might reinforce these concerns with parents.

Since no in-depth investigations have been carried out on whether and to what extent parents and children agree on the types of internet mediation, the second research question was:

RQ2:   To what extent do the mediation strategies for internet use as perceived by parents correspond to the mediation strategies as perceived by their children?

Predictors of Mediation

Parents may differ in their preference for certain mediation styles (Duimel & de Haan, 2007; Livingstone & Helsper, 2008). Based on previous studies on television and video game mediation, we can surmise what factors may determine parental mediation strategies for children's internet use. Since these factors may be interrelated, they should be investigated simultaneously by empirical analysis.

Following Nikken and Jansz (2006), we assume that parental mediation of both old and new media springs from a similar concern to protect children from harm. Previous studies have shown that parents who were more concerned about the negative effects were likely to restrict and discuss their children's media use (Nathanson, 2001; Nikken & Jansz, 2006; Valkenburg et al., 1999; van der Voort et al., 1992). Mothers especially tended to be more concerned about the dangers posed by the media for girls than for boys (Valkenburg et al., 1999), resulting in more talking about and/or restrictions on media use. Also, the media use of younger children was mediated more often than that of teenagers (Valkenburg et al., 1999), probably due to parents' concerns about their child's development. This leads to the expectation that similar relationships may be found for internet use; more parental involvement of talking with the child about internet activities may occur among parents who are concerned about the impact of the internet. Restricting the child's internet use might also ensue logically from parental concerns about negative effects. On the other hand, the internet has rapidly secured a central role in the social world of teenagers, making restricting internet use not a simple suitable solution.

Parental mediation of old and new media is also related to the parents' own social background, and in particular to their educational level (Livingstone, 2002; Roe, 2000). This may function as a proxy for parenting style, since parents with a higher educational level generally possess better linguistic and cultural skills. Accordingly, Notten and Kraaykamp (2009) argue that they were therefore more aware of the potential risks and benefits of exposure to specific media and would also mediate their children's internet use more actively. Nikken and Jansz (2006), however, found that less well-educated parents were more apt to mediate their children's offline video gaming but this may have been due to greater familiarity with gaming and its risks and benefits for children among parents in less affluent homes. Finally, family size was found to influence the preference for certain

television mediation styles. For example, restrictive mediation occurred more often in smaller families than in larger units (van der Voort et al., 1992, 1998).

Additionally, the level of internet skills and frequency of internet use within families might contribute to the adoption of different mediation types (Nathanson, 2001; Notten & Kraaykamp, 2009). van der Voort et al. (1992) found that television co-viewing was more prevalent among parents with high media use. Furthermore, co-playing with the child was practised more often by parents who were themselves more active players (Nikken & Jansz, 2006). It may be assumed that knowledgeable parents and frequent users were more likely to discuss and evaluate their children's internet use and use the internet together with them, whereas parents who were low users might neglect or restrict their children's internet use more often. Finally, the opportunity to supervise children's internet use was also influenced by the accessibility of media assets in the parental home (Notten & Kraaykamp, 2009) or the number of places and devices from which children could access the internet.

In order to investigate the unique contribution of the predictors of different mediation strategies, we systematically distinguish between three sets of factors: demographics, characteristics of internet usage, and parental views on internet use. For each of these factor sets, the explanatory power is investigated to address the third research question:

RQ3:   Which factors determine the different strategies applied by parents to mediate their children's internet use?

Method

To address the research questions, data for the Netherlands were drawn from the European survey project EU Kids Online.

Sample

The sample consisted of 1,004 Dutch internet users aged between 9 and 16, as well as one of their parents. The sample was drawn by the Dutch research organization IBT Marktonderzoek. First, a random sample of households was drawn from addresses in the national telephone directory, stratified by region and population density. Second, one 9- to 16-year-old internet user and one parent were approached from each of these selected households and asked to participate in an in-home face-to-face survey between May and August 2010. From the total of 2,638 child–parent dyads approached, 1,004 interviews were completed.

The sample was weighted according to the number of children in the household, age and gender of the child, region, and education level of the main wage-earner (Ipsos, 2011).

Measures

Parental Mediation

Both parents and children responded to the same twenty-five questions on active, co-use, restrictive, and monitoring aspects of parental mediation. The questions were primarily based on Livingstone and Helsper's study of parental mediation of children's internet use (2008), as well as previous studies on mediation of other media use, mainly television viewing (Valkenburg et al., 1999; van der Voort et al., 1992). Some questions had

"yes/no" answer categories, whilst others had a three-point scale ranging from "not used", to "sometimes used" and "always used". To ensure consistency in the analyses, all answer categories of the twenty-five mediation items were dichotomized (0 = no mediation; 1 = mediation). The construction of the mediation scales is presented in the "Results" section. Table 1 shows the percentage of Dutch parents and children who said for each mediation item that the particular mediation aspect was used in their family.

Demographics

Age ($Mean_{child}$=12.7, SD_{child}=2.2; $Mean_{parent}$=44.0, SD_{parent} = 5.5), gender (47 per cent boys, 53 per cent girls; 31 per cent fathers, 69 per cent mothers), education, and family size were considered as demographic background characteristics. Parental education was measured on a scale from 1 to 7 based on the Dutch education system ($Mean$ = 4.8; SD = 1.3). Family size was measured by the number of children living in the households surveyed ($Mean$ = 2.3; SD = 0.98).

Internet Usage

Characteristics of internet use by both parents and children were taken into consideration. Children estimated the amount of time they spent online on normal schooldays and on non-schooldays in minutes, resulting in a daily online time ($Mean$ = 93.6; SD = 63.2). Both parents and children indicated whether they used the internet on a daily basis (80 per cent among children, 83 per cent among parents). Additionally, children reported on the number of different places where they used the internet ($Mean$ = 3.8; SD = 1.3; range 1 to 8). As an indication of digital skills diversity of internet use was used, based on the number of online activities performed during the past month (ranging from 0 to 17; $Mean$ = 7.6; SD = 3.1) (see also Sonck, Kuiper, & de Haan, 2012).

Parental Views towards Internet Use

Parents indicated how confident they felt about their own use of the internet on a four-point scale (1 = not confident; 4 = very confident; $Mean$ = 3.3; SD = 0.67). Additionally, parents indicated the extent to which they agreed with the statement that "The things they do in relation to how their child uses the internet help to make the children's internet experience better" (79 per cent of parents agreed). Finally, parents indicated whether they were worried about two internet risks to which their child could be exposed, namely, "seeing inappropriate material" and "being contacted by strangers". A dummy variable was constructed (0 = no worries about these internet risks; 1 = worried about at least one of the internet risks, 21 per cent).

Results

Types of Parental Mediation

The first two research questions were concerned with which parental mediation strategies of children's internet use could be identified (RQ1), and to what extent parents and children agreed or disagreed on those strategies (RQ2). To address these questions, the

TABLE 1
Principal component analysis of mediation items based on parents and children's reports (n = 1,004)

	Monitoring		Restrictive content mediation		Active safety mediation		Restrictive technical mediation		Additional items					
	Parent	Child	Parent	Child	Parent	Child	Parent	Child	Parent	Child	Parent	Child	Parent	Child
Whether parents sometimes check…														
Which friends or contacts the child adds to a social networking profile or instant messaging service (44.5%, 33.2%)	0.823	−0.748												
Child's profile on a social networking or online community (52.8%, 42.8%)	0.809	−0.759												
The messages in the child's email or instant messaging account (32.1%, 22.2%)	0.698	−0.761												
Which websites the child visited (48.7%, 41.0%)	0.664	−0.539												
Whether rules apply about whether the child can…														
Have own social networking profile (30.6%, 24.0%)			0.758	−0.759										
Watch video clips on the internet (22.9%, 15.5%)			0.745	−0.619										
Use instant messaging (32%, 22.6%)			0.727	−0.774										
Download music or films on the internet (54.4%, 48.3%)			0.606	−0.733										
Upload photos, videos, or music to share with others (60.2%, 48.3%)			0.463	−0.714					0.559					
Give out personal information to others on the internet (89.4%, 88.5%)											0.783	−0.591		
Whether parents have sometimes…														
Suggested ways to use the internet safely (74.4%, 60.0%)					0.689	0.545								
Suggested ways to behave towards other people on the internet (72.0%, 49.8%)					0.682	0.416								
Talked to the child about what s/he would do if something on the internet bothered her/him (63.3%, 42.3%)					0.671	0.809								

	A	B	C	D	E	F
Explained why some websites are good or bad (81.4%, 67.1%)	*0.469*	*0.638*				
Helped the child in the past when something has bothered her/him on the internet (40.5%, 26.9%)	*0.771*	*0.605*				
Whether parents use…						
Parental controls or other means of blocking or filtering some types of website (36.4%, 37.4%)			*− 0.629*	*0.763*		
Parental controls or other means of keeping track of the websites the child visits (27.6%, 25.8%)			*− 0.666*	*0.611*		
A service or contract that limits the time the child spends on the internet (10.0%, 11.3%)			*− 0.657*	*0.575*		
Software to prevent spam or junk mail or viruses (92.8%, 91.8%)			0.448			− 0.683
Additional items						
Help the child when s/he finds something difficult to do or find on the internet (82.3%, 82.5%)					0.569	− 0.788
Encourage the child to explore and learn things on the internet on her/his own (63.7%, 55.3%)					0.737	− 0.411
Do shared activities together with the child on the internet (59.6%, 65.1%)				0.601	0.598	
Stay nearby when the child uses the internet (59.0%, 85.4%)					0.592	
Sit with the child while s/he uses the internet (65.9%, 62.4%)					0.723	− 0.668
Talk to the child about what s/he does on the internet (87.7%, 61.1%)						− 0.505

Note. Factor loadings it italics: items used in scales. Figures between brackets after each item: % parents, % children who say this mediation is used in their family.

mediation items as perceived by parents and children were examined by means of principal component analysis for both groups. With this technique, we summarized the variation present in the original set of mediation items, using a smaller number of derived scales (Joliffe 1986/2002). Due to an expected intercorrelation between factors (Nikken & Jansz, 2006; Valkenburg et al., 1999), the Oblimin option was used (Delta = 0). The results showed that in general there was a considerable consensus among parents and their children as to which activities defined certain mediation strategies. Table 1 presents the rotated factor loadings based on the reports by parents and children.

A first factor with congruent high factor loadings for both parents and children consisted of monitoring activities. This factor, labelled *monitoring*, contained four items which were all concerned with aspects of internet use that parents checked afterwards, such as the contacts added by children online, children's social networking profile, e-mail account, and previously visited websites.

A second factor represented parental rules about what children were allowed to do on the internet. Parents and children concurred on four items representative of *restrictive content mediation*. These items concerned rules about restricting children in relation to their social networking profile, watching video clips online, using instant messaging, and downloading music or films. A less congruent picture was found for two other restrictive activities. Parental restrictions on uploading content to share with others online and giving out personal information, in the eyes of the parents and of their children, turned out to be ambiguous. The items either loaded high on more than one factor or simultaneously defined a separate factor depending on the child or the parent reporting.

A third factor was the *active (safety) mediation* strategy, containing five items about what parents did to increase their children's safety online, such as suggesting ways of using the internet safely and of behaving towards other people online, talking about coping strategies in the event of harm from internet use, and explaining the reliability of websites. Parents and children had similar perceptions of this strategy, as the responses for both groups resulted in similar unique loadings on this factor.

A fourth factor on which parents and children tended to agree was *restrictive technical mediation*. For three items, similar factor loadings were found for both parents and children. These items referred to applications to control or filter websites and keep track of them, as well as services or applications to limit the time spent by the child online. A fourth item about software to prevent spam e-mail or viruses was perceived as a restrictive mediation strategy by the parents, whereas children related this to giving out personal information.

As Table 1 indicates, parents and children had different views on a further six parental activities related to the active co-use mediation of children's internet usage. Within these activities parents perceived helping and encouraging the child whilst doing shared activities with that child as a distinct form of mediation from sitting and talking with the child whilst the child used the internet. According to the child, however, helping and encouraging were not related to activities that were shared with the parent. Instead, children related doing shared activities on the internet much more with a parent staying nearby or sitting with the child. Because of the incongruent perspective of parents and children on these active co-use mediation activities, we do not further analyse them here.

Perceptions of Mediation Compared Between Parents and Children

To investigate to what extent parents and children concurred (RQ2) in their perception of the appliance of mediation strategies, the reports by parents and children were compared using Student's t-tests. Four sum scales were constructed based on the parents and children's reports of the (dichotomized) mediation items. Only those items on which the parents and children agreed in the factor analyses were taken into account. To ensure consistency and comparability between the scales, these were rescaled to range from 0 (no mediation aspects applied from the respective style) to 4 (all aspects from the respective mediation style applied). As can be seen from Table 2, most scales had sufficient Cronbach's alpha values.

Table 2 also shows that the parental reports were significantly higher for all mediation strategies than the children's reports. The differences were not equal for all mediation strategies. Parents and children differed the least from each other for restrictive technical mediation and the most for active mediation. This is in line with the differences in the prevalence of the individual mediation items as reported by parents and children, shown in Table 1.

Although the application of mediation strategies differed for parents and children in absolute terms, the relative order was similar. Both agreed that the active mediation strategy was the most commonly applied, followed by monitoring children's internet use. The two restrictive mediation strategies, and in particular the strategy of applying technical controls, were the least commonly used to mediate children's internet use, according to both parents and children.

Determinants of Mediation

The third research question (RQ3) was concerned with which factors determined the different strategies applied by parents to mediate their children's internet use. To address this question, separate multivariate regression analyses were conducted for each of the four mediation scales. The analyses were performed separately for the responses of parents and children. Three sets of predictors were successively (i.e. stepwise) included in the regression analyses: demographics, measures of internet usage, and parental views towards the internet. Table 3 shows the results of the final model and the explained variance (R^2) per step.

Monitoring

Both the parents and children's responses showed that checking children's online contacts and previously visited websites was carried out more frequently with younger

TABLE 2
T-test differences in mediation strategies (0–4) between parents and children

	Parents			Children			T-test
	M	*SD*	Cronbach's alpha	*M*	*SD*	Cronbach's alpha	T;p
Monitoring	1.63	1.46	0.79	1.07	1.27	0.81	7.94***
Restrictive content mediation	1.35	1.39	0.76	0.99	1.19	0.73	6.20***
Active safety mediation	2.55	1.20	0.72	1.80	1.24	0.72	13.73***
Restrictive technical mediation	0.97	1.18	0.52	0.86	1.10	0.54	1.98*

TABLE 3
Multivariate regression analyses of four mediation strategies (0–4) (in beta's)

	Monitoring		Restrictive content mediation		Active safety mediation		Restrictive technical mediation	
	P	C	P	C	P	C	P	C
Step 1: Demographics								
Child's age (9–16)	−0.10*	−0.15**	−0.28***	−0.26***	0.05	−0.08	0.03	−0.05
Girl (Ref. = boy)	0.05	0.11**	−0.06*	−0.02	0.10**	0.11**	−0.09	0.04
Parent's age (years)	−0.19***	−0.19***	−0.01	−0.03	−0.07	−0.05	−0.02	0.07
Mother (Ref. = father)	0.04	−0.10*	0.10***	0.05	0.03	−0.03	−0.04	0.01
Parent's education (1–7)	−0.02	−0.04	0.04	0.02	0.01	0.01	−0.05	−0.14***
Family size	0.02	0.00	0.07*	0.06*	0.05	0.02	0.22***	0,25***
R^2 step 1	0.07	0.09	0.29	0.21	0.03	0.02	0.04	0.08
Step 2: Internet usage								
Minutes spent online per day (child)	−0.07	−0.01	−0.02	−0.01	−0.07	−0.03	−0.06	−0.01
Child uses internet daily (Ref. = less than daily)	−0.02	−0.01	−0.08*	−0.07*	0.08*	0.07	−0.04	−0.14**
Parent uses internet daily (Ref. = less than daily)	−0.01	0.03	0.02	0.06	0.03	−0.03	−0.07*	−0.05
Number of places child goes online (1–8)	0.10**	−0.07	−0.11***	−0.05	0.08*	0.04	0.05	−0.05
Diversity of online activities (child; 0–17)	0.13**	0.17**	−0.28***	−0.26***	0.15***	0.11**	0.02	0.08
R^2 step 2	0.12	0.13	0.38	0.29	0.11	0.05	0.05	0.09
Step 3: Parental views								
Parental confidence in own internet use (1–4)	0.10**	0.03	0.02	−0.04	0.01	−0.01	0.04	0.09*
Parental involvement improves child's internet experience (Ref. = parent disagrees with statement)	0.13***	0.18***	0.09**	0.10**	0.23***	0.17***	0.11**	0.11**
Parents worry about internet risk(s) for child (Ref. = no worries)	0.13***	0.05	0.01	0.03	0.07*	0.06	0.09**	0.10*
R^2 step 3 (total model)	0.17	0.16	0.39	0.30	0.15	0.07	0.08	0.13

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; P = parent's perceptions; C = children's perceptions.

children than older children, and by younger parents more than older parents (see Table 3). Furthermore, the children's reports showed that girls perceived themselves to be monitored more frequently than boys, whereas fathers were perceived to monitor more often than mothers. Additionally, we found that the more diverse the activities performed by children online, the more parents monitored their internet use. Parents also reported that they monitored their child's internet use more often when the child had access to the internet at several locations. This relationship was not observed on the basis of the children's reports of monitoring. Finally, a positive relationship was found among both parents and children between monitoring and the parent's opinion that their mediation improved the child's internet experience. We also observed that parents who regarded themselves as confident with the internet and who worried about online risks more often carried out monitoring activities. Among children, however, these relationships were absent.

The demographics explained 7 per cent of the variation in parental perceptions of monitoring in the first step, which increased to 12 per cent due to the additional inclusion of internet usage in the second step, and rose to 17 per cent based on the addition of parental views in the third step. A similar increase in this percentage was observed for the children's perceptions of monitoring (from 9 per cent to 13 per cent and 16 per cent, respectively). This illustrates that each set of factors additionally contributed to the total amount of variance explained in the perceptions of monitoring.

Restrictive Content Mediation

Compared to monitoring, the degree to which the variation in restrictive content mediation was accounted for by the factors included in the model was much higher (R^2 increased from 29 to 39 per cent among parents, and from 21 to 30 per cent among children). There was also a high congruence between parents and children with regard to the predictor variables: in both groups five variables similarly related to restrictive mediation. As Table 3 shows, younger children were more restricted than older children by parental rules about online content, and in larger families parents applied more restrictions to online activities than in smaller families. According to the parents, boys were also restricted in their online activities more frequently than girls, and mothers said they applied such restrictions more often than fathers. These gender differences did not appear in the children's reports. With regard to internet usage, we found that more parental restrictions had a parallel in less diverse online activities by the children and less use of the internet on a daily basis. Finally, parents who thought that their mediation improved their children's internet experience more often restricted their children's use of online content.

Active Safety Mediation

Table 3 shows that when demographics, internet usage, and parental views were included in the final model they together explained 15 per cent of the variance for active safety mediation as measured among parents (R^2 increased from 3 per cent to 11 per cent and 15 per cent, respectively), but only 7 per cent among children (R^2 rose from 2 per cent to 5 per cent and 7 per cent, respectively). Both groups concurred on three predictors indicating that: girls more often received active mediation from their parents than boys; children with a more diverse range of online activities received more advice and help from their parents about online safety than children who performed fewer different online

activities; and parents more often applied active mediation when they thought that their involvement improved their children's internet experience. Unlike children, parents said that they applied active mediation more often when their children used the internet on a daily basis and at several locations, as well as when they worried about internet risks.

Restrictive Technical Mediation

Table 3 indicates that the determinants of restrictive technical mediation explained the least variance compared to the other mediation styles (R^2 rose from 4 per cent to 5 per cent and 8 per cent among parents; from 8 per cent to 9 per cent and 13 per cent among children). Children and parents concurred on three determinants. The most important predictor turned out to be the number of children living in the household: according to both groups, more technical controls were applied in larger families. Furthermore, the children's reports indicated that parents more often applied restrictive techniques in less well-educated families, when children made less use of the internet, and when parents were confident in their own internet use. Finally, both among parents and children, we found that restrictive technical mediation was more often applied by parents who had a positive attitude towards the impact of their involvement in their children's internet experience and who worried about the risks of the internet for their children.

Conclusion and Discussion

Internet Mediation

Using data from the Dutch EU Kids Online project, we empirically observed in a sample of parent–child dyads the mediation strategies parents applied to their children's internet use. The data revealed that two of the three mediation styles found in previous television and video games research were also perceived by parents and children as distinct forms of internet mediation, namely, active and restrictive mediation. Our data also corroborated Livingstone and Helsper's (2008) notion that restrictive mediation comprises two different types: content and technical restrictions. And in line with Livingstone and Helsper, monitoring emerged as a distinct style of internet mediation. Based on our factor analyses, future studies could make use of four unique reliable measures of parental mediation of children's internet use. For example, could active mediation and restrictions on content and time help to prevent compulsive internet use (van den Eijnden et al., 2010) or would they enhance the child's interest in "forbidden" media content (Nikken & Jansz, 2007)?

In addition to these four types of internet mediation, we did not find agreement among parents and children on co-use as a separate mediation style, or on the adapted version, "active co-use", as proposed by Livingstone and Helsper (2008). Although three items pertaining to "sharing online activities", "staying nearby", and "sitting with the child" tended to cluster as a co-use mediation style among children, these items did not form a separate factor among parents. Rather, they framed "sharing online activities" as an active type of mediation combined with "helping the child when encountering problems" or "encouraging the child to explore and learn from the internet". It is, however, too early to conclude that co-use or active co-use does not exist as a separate internet mediation style. In hindsight, for co-use our measurement did not contain the most optimum items. In earlier studies co-viewing and co-playing were measured using items that pertained more

to activities such as intentionally using media together because the parent or the child wanted to or because of a common interest in media content that both the parent and the child liked (Nikken & Jansz, 2006; Valkenburg et al., 1999). Furthermore, children are now able to access the internet almost everywhere, using mobile devices, such as smartphones, laptops or tablet computers, reducing the opportunities for parents to co-use the internet with their children as well as to combine co-use with active mediation interventions compared to when internet use was more of a home-based activity (cf. Livingstone & Helsper, 2008). Future studies should pay attention to the framing of active mediation and co-use as perceived by parents and children so as to ground policy recommendations on effective parental mediation.

Parents Versus Children

In line with prior research on media socialization, the results showed that parental accounts of internet mediation were consistently higher than those of children. According to both groups, technical tools to restrict internet use were applied the least, whilst actively mediating internet use was the most prevalent mediation style. Active mediation was also the style on which parent and child reports showed most differences in an absolute sense. In relative terms, however, there was close agreement between parents and children on the prevalence of each mediation style, indicating that the two groups concurred in their recognition of each mediation style. An explanation for the absolute differences could be that the perceived use of mediation was related to different perceptions on the amount of internet use and the type and moments of help needed. Parents might, for example, think that they actually helped their child to use the internet in a safe manner every time the child needed assistance, whereas children might experience many more occasions when they felt they needed help. It could be that in these latter cases they obtained help from friends or siblings. Parents and children might also have reported the prevalence of mediation differently, because of different interpretations of the underlying activities. For example, parents might see all kinds of talking to their children about the internet as forms of active mediation, whilst their children may have thought of only some specific kinds of interaction with their parents. In addition, since parents deliberately applied mediation, they may also remember their practices better than their children, and consequently report a higher prevalence of mediation.

Determinants

Parents and children not only differed in the absolute amount of mediation perceived, but to a certain extent also in the determining factors (demographics, internet usage, and parental views) that influence the four mediation styles. Parents and children differed for about half the significant relationships between the mediation styles and the determinants. This finding provides further evidence that the two groups each have their own perceptions of parents' internet guidance.

With regard to the determinants on which parents and children agreed, most findings were in line with previous research on determinants of television and video game mediation (e.g. Nikken & Jansz, 2006; Valkenburg et al., 1999). It is interesting to note that both groups reported that younger children were monitored more intensively and restricted more often in their internet use. And children who were subject to less content

restrictions from parents more often went online on a daily basis and were involved in more diverse online activities. Children who were involved in more online activities also more often monitored and received more active mediation. The latter specifically affected girls as opposed to boys. And it appeared that parents applied all types of mediation more often when they felt that their involvement with the child's internet use was beneficial to the child. Both parents and children concurred on all these findings, indicating that both groups recognized that parents were valuable mediators when a child might be confronted with more internet risks. This result seems logical, since the more different activities children perform on the internet, the more their parents may want to check or discuss what their children do online. Conversely, it may be assumed that children with a more diverse repertoire of online activities are also more digitally skilled (Sonck et al., 2012), and therefore might need less involvement of their parents in order to use the internet safely.

Parents and children concurred in their observation that technical restrictions were more often applied in larger families and by parents who worried about internet risks. The existence and use of technical measures on computers at home was more obvious for children and their parents in larger families, as well as when the children were aware of their parents' concerns. The finding that both content and technical restrictive mediation of children's internet use occurred more often in larger families than in smaller ones contradicts previous findings about television mediation (van der Voort et al., 1992, 1998). There are two possible explanations for this. First, over a decade ago parents in larger families may have been more lenient towards the use of media by their children than contemporary parents in large families. Second, parents may have stronger concerns over the risks of the internet for children as compared to the negative effects of television. As a result, parents may be less strict in keeping television rules for all children in larger families, especially when siblings wanted to watch together, whereas they might place higher restrictions on the use of a computer by their children, most probably to protect the younger ones.

Interestingly, only parents reported that they refrained from content restrictions but also more often monitored and applied active mediation when their child went online at various locations, and when the parents were more worried about online risks. In these circumstances parents felt a greater need to apply these forms of mediation, whereas children did not have the same perception. It could be that children perceived their parents as absent when they went online at various locations, and therefore did not notice their parents' monitoring activities or the concerns their parents expressed.

Finally, dissimilarities emerged with regard to gender and educational level. In line with earlier mediation studies, mothers were found to apply content restrictions more often than fathers. However, the children did not perceive this gender difference; in their eyes mothers were restrictive to the same degree as fathers. And contrary to the findings of earlier mediation studies, but corroborating Nikken and Jansz (2006), according to the children, parents in less well-educated families more often applied restrictive technical mediation.

The integration of internet mediation into daily parenting practices largely depends on the level of internet diffusion, which differs between countries and over time. Differences between countries in diffusion rates may, in turn, determine the level of digital skills and the experience of parents with the internet in a country. As the Netherlands is characterized by almost full internet access, with parents actively mediating their children's internet use, it might be a model of what to expect in other countries now and in the near

future if all parents are able to go online and have gained experience with the medium. Results of this study are not confounded by excluding late adopter groups of parents, often characterized by low income or low educational level, who are not yet online and who might be more reluctant to be involved in parental mediation. Time is also a relevant factor, as it is related to the number and type of technological opportunities available at a certain moment. Countries surveyed at a later point in time are more likely to offer internet access via multiple platforms, being used by more competent users for a wider variety of online practices. With the emergence of new technology, parents might adapt their mediation or see that their mediation opportunities have changed. The rise of mobile access (smartphones and tablets), for example, has seriously changed what parents can do. More or other risks associated with these new media used by children might now call for different mediation responses from parents. Thus, similarities between countries in diffusion rates, parents' experience, and technological opportunities constitute a basis to generalize our findings to other countries.

However, cultural and social differences between countries limit this basis for generalization. For example, recent research suggests that different styles of parental mediation, depending on parental values and preferred styles of parenting, might be more prevalent in different cultural contexts (Kirwil Forthcoming). Differences in the types and prevalence of mediation could be the result of the general value orientation of the country, and in particular, cultures of a collectivistic or individualistic orientation (see Kirwil et al., 2009). They may also be related to the role of welfare state institutions, since they regulate female labour force participation and the availability of public childcare facilities (Kalmus & Roosalu, 2011). Geographical location and national wealth (including social inequalities within countries) may also influence the prevalence of and preference for particular mediation styles. Yet cross-country analysis often shows that factors within countries are much more important than those between countries. In future research the interrelationship between the aforementioned factors within and between countries should be specified in order to build a theoretical model to explain differences in internet mediation between countries.

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Dr Nathalie Sonck (author to whom correspondence should be addressed), is a senior media researcher in the Time, Media and Culture research group at The Netherlands Institute for Social Research/SCP. She specializes in research on media use, and in particular the consequences of internet use by young people, their digital skills, and the role of parental mediation strategies. The Netherlands Institute for Social Research/SCP, PB 16164, 2500 BD, The Hague, The Netherlands. Tel: +31/70-3406037; E-mail: n.sonck@scp.nl

Prof Dr Peter Nikken is a professor of Parental Mediation at the Erasmus University Rotterdam and a senior researcher at the Netherlands Youth Institute (NJi), an expert centre on issues related to children's welfare and youth policy. His research focuses on the intermediate role of parents and professional educators. He has published widely both popular and academic reports on children, young people, and the media in the Netherlands and abroad. E-mail: p.nikken@nji.nl

Prof Dr Jos de Haan is Head of the Time, Media and Culture research group at The Netherlands Institute for Social Research/SCP and a professor at Erasmus University Rotterdam. He specializes in research on cultural interests and media use. His recent research focuses on the digital divide, the digital generation, and the rise of e-culture. E-mail: j.de.haan@scp.nl