Parental mediation of children's video game playing: A similar construct as television mediation

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ABSTRACT
By means of an Internet-survey among 536 parent-child dyads, we researched which mediation strategies parents use for their children's (8-18 years) video gaming. As in previous research on television mediation, principle factor analyses show that the same types of strategies are used: 'restrictive mediation', 'evaluative mediation', and 'consicous co-playing'. Mediation is most strongly predicted by the age of the child and by parents' gaming. Furthermore, parents are more restrictive and evaluative when they fear negative media-effects on behaviors and attitudes. They somewhat more often play together with the child when they suppose positive social-emotional effects of gaming.

Keywords
Mediation, parents, children, conference publication

INTRODUCTION

In the previous years, many popular publications appeared that assist parents in media guidance [5, 9, 13, 16, 18, 20, 24]. The large interest in the upbringing of children with media is also visible in many scientific publications [2, 3, 7, 11, 14, 21, 22, 23]. It is remarkable however, that academic research so far has been mostly concerned with the mediation of television viewing. As far as we know there is but one study [19] that specifically examined the way parents guide eleven- and twelve-year-olds in playing video games and the underlying motives. The current study researches how a large representative sample of

parents feels about mediating video games on the pc or game computer and why they do so. Furthermore we determine the way children from the ages of eight to eighteen feel about the media guidance of their parents.

Television mediation

At least three forms of mediation have been empirically distinguished in television mediation: (a) exercising control on the amount of time children watch television and on the programs they view (restrictive mediation), (b) commenting on program contents and discussing these with children (evaluative, instructive or active mediation) and (c) watching together and discussing programs in general (known as unfocused mediation or social co-viewing). These three strategies were established among American mass media scholars [9] and in replication studies among 'ordinary' American [1] and Dutch parents [21, 22, 23].

According to Van der Voort et al. [22] the unfocused mediation (watching and discussing television together) is not an occasional activity because parents watch the same programs as their children, but a conscious form of guiding started by the child or the parent. Moreover, the three forms of mediation are not only perceived by parents, but also by their nine to sixteen year-old children [23]. The unfocused mediation in these families, however, turned out to refer to "discussing shows" and not to "watching together". In later studies more varieties of unfocused and evaluative mediation were found. For instance, Valkenburg et al. [21] found the other type of unfocused mediation among parents with younger children (five up to twelve), i.e. 'conscious co-viewing' which the authors re-named 'social co-viewing'. They also found an adapted form of evaluative mediation: the 'instructive mediation'. The re-naming was necessary because Valkenburg et al. specifically inquired explaining and helping children to understand television programs and not discussing program content. Finally, two types of evaluative mediation ('active mediation') are found among parents with children aged two up to seventeen, namely: a negatively disposed (telling a television program is not right) and a positively disposed (agreeing with the offered choice on television) [3].

Video game mediation

It remains to be seen whether the results of research on parental behavior in mediating children's television viewing also apply on the way children deal with video games. On the one side, it is possible that television mediation methods cannot be generalized to video games, because there are important differences between television viewing and video game use. Probably the main difference between the two is that 'gaming' usually is a solitary activity (on the pc, a game console or on a handhold computer like the Gameboy), where as television viewing is done more collectively as a family activity [17]. The opportunities for parents to control or encourage the media behavior of the child are therefore more prevalent in television viewing than in playing video games. Moreover, unlike with television not all parents are capable of determining what exactly the child is doing on the pc or game computer.

Alternatively it is conceivable that the strategies parents apply on dealing with television at home are also applied on other media such as the pc and game console, because parents may have the same objections or

preferences which will lead them to prohibit certain games, to play together with their children, or to critically discuss game content. Although parents are less involved in games, the strategies that apply to television are also suggested to them in literature on video games [16, 18, 24] or media in general [17]. In addition, there is a study [19], which showed that parents do apply the three television mediation activities (restrictive, evaluative and unfocused) on playing video games. Because the sample in that research was, however, relatively limited in size (N = 105) and consisted mainly of mothers of eleven- and twelve-year-olds, it is desirable to research parents' game mediation among a representative sample of mothers and fathers. The first goal of the current study is therefore to research in what manner a large sample of fathers and mothers of children of younger and older ages mediate video gaming.

R_1: Which strategies are used by parents when they mediate their children in dealing with video games?

Children in general are well aware of the media rules set by their parents, even though they not always abide [17]. Also, studies that systematically compared the television mediation strategies mentioned by parents and children, conclude that both groups concur in the types of media guidance they perceive [14, 23]. The similarity is largest for restrictive mediation, possibly because this mediation type is of main importance for children. Van der Voort et al., who used the same instrumentarium for both groups, found that children and parents only differed with regard to the perceived prevalence of mediation [23]. Therefore, they state that the most reliable determination of parental mediation is obtained by combining the answers of parents and children. However, because video games, much more than television, form their own domain with its own social-cultural customs [4], it is possible that children view their parents' intervention in a very different way than their parents do. Possibly children and parents hold different opinions on 'appropriate' game behavior and 'appropriate' game content, which may lead to different perceptions of media guidance for parent and child. Therefore, a second research question is this study is:

R_2: To what extent do parents and children concur in their views on game mediation?

Predictors of mediation

According to the studies on television mediation [2, 8, 14, 21, 22, 23] and computer mediation [19] parents suspect both negative and positive media effects on children at the same time and the perceptions are related to their media guidance behavior too. Parents who are more concerned about the negative effects of television or video games more often restrict viewing or playing. These parents also discuss program and game content more often with their children. Parents who are convinced of the positive effects of media on children are more likely to watch or play together and/or to discuss and evaluate media contents with their children. Although parents at present seem to be less concerned about possible media effects then in the past [17], we expect parents to be more involved in computer game mediation when they have a stronger believe in possible impacts of video games. This leads us to the following hypotheses:

H_1: Parents hold at least two types of opinion on video games, that is negative and a positive.

H_{2a}: Parents who expect negative impacts of video games exercise more control on their children's game behavior and give more explanations on games or discuss games more often.

H_{2b}: Parents who expect positive impacts of video games are more likely to play together with their children and to give more explanations on games or discuss games more often.

The extent to which parents unfold mediation activities is determined not only by the beliefs of the parents concerning possible media impact, but can also depend on situations in the household and on characteristics of the parents and children [2, 8, 14, 17, 19, 21, 22, 23]. In general parents use more mediation activities for younger children and girls than for older children or for boys. Moreover, mothers mediate their children more often in their media use than fathers, although for computers the opposite is found. Higher educated parents are more active in media mediation than lower educated parents and television mediation occurs more often in smaller families and in families with high media use. If media guidance for video games is comparable to media guidance of television viewing, the following hypotheses will hold:

H_{3a}: Restrictively disposed mediation forms are mostly applied by parents of younger children and girls, by highly educated parents, by parents who do not often play games themselves and in families with fewer children and more fervent players.

H_{3b}: Explaining or evaluating computer games is more prevalent amongst parents of younger children, amongst highly educated parents and amongst parents who often play themselves or that have heavy gaming children.

H_{3c}: Playing games together or talking about them is more common for younger children, for highly educated parents and for parents and children who frequently play games.

METHOD

In Spring 2002 an Internet-questionnaire was submitted to a random sample of parents with one or more in living children of eighteen years or younger. The sample was taken from a large representative database (N = approx. 23.000) of persons who had indicated to cooperate with research. A total of 1.115 parents has been approached, of which 31 per cent did not want to participate for various reasons (for instance because the parent or child had no interest or time). A further 21 per cent only had children younger than eight years, who could not be asked any questions. Parents who had one or more children between eight and eighteen years (N = 536) and who did participate in the research were requested to have the questions answered by the child whose birthday would first come up. The sample consisted of slightly more fathers (51%) than mothers and the average age was 41.0 years (varying from 18 up to 65 years). There were more boys (59%) than girls representated in the sample of children. The average age of the children was 12.5 years.

We have chosen an Internet-survey because this is an efficient and reliable method of surveying large groups of respondents on their beliefs on issues like media and education. Especially when personal beliefs and emotions are involved, the chance of socially desirable answering is less big in telephone- and Internet-surveys than in face-to-face interviews. Furthermore, the presence of Internet connected pc's in Dutch families is at present fairly large: about 90

per cent of these families is connected [12]. A preliminary research by phone (*N* = 51) was held, however, to find out whether families that are connected to the Internet differ from families that are not connected in their use of and ideas on video games on pc or game console. Even though children in families who are not connected to the Internet play a bit more often on a TV-linked game console, the differences on the main answers of this research were acceptably small.

Mediation strategies

In both the parental questionnaire as in the questionnaire for children 15 questions pertained to the frequency ('rarely or never', 'now and then', 'often') with which parents apply different mediation activities on their children's video game behavior (see Table 1). It was indicated that all questions related to games on a Gameboy, a game computer (i.e. Sega, Atari, Nintendo, Playstation etc.) or on a pc (like cd-roms and Internet). The questions concerned the three types of mediation found in previous research: restrictive, evaluative and unfocused. Whereas the parents were asked to keep the child in mind that was participating in the research while answering the items on their own behavior, for the corresponding items the child was asked to think about the participating parent. All questions were asked in a random order by a computerized rotation technique for parents and children alike.

Perceived impact of video games

The perceptions of parents regarding game impact on children were assessed by presenting 30 statements on certain video game effects that are distinguished in literature and public debate. For each statement, we determined to what extent parents 'disagreed', 'slightly agreed' or 'agreed' with the statement. The statements regarded both negative impacts of video games (on behavior, attitude and health) and positive impacts (on knowledge, social skills and emotions). All statements were presented to each parent in a random order.

Demographics

All parents were asked to render information on their *educational attainment level* ('low', 'average', 'high', 'academic'), *family size* (number of siblings at home) and their *frequency of game behavior* ('rarely or never', 'sometimes', 'often'). The children were also asked for their *game frequency* ('once a week or less', 'two or three days a week', 'every other day').

RESULTS

Video game mediation

To determine the dimensional structure of the mediation behavior of the parents we applied principal component analysis on the fifteen items that were used to establish the frequency of mediation activities. The principal component analyses were done separately for the answers of the parents (R_1) and the children (R_2). Because of an expected correlation between the factors [14, 21, 22, 23] we used the Oblimin option of SPSS for both analyses. After deleting two items ('Encouraging children to play' and 'explaining how best to play a game') that scored high on multiple factors in the first analyses, we

found strong corresponding solutions with three factors for the children data and the parent data (see Table 1). With the exception of one item, the three factors for parents and for children are defined by the same mediation activities, whereas the order of the three factors is the same too.

The five items that have a high loading on the first factor, are all concerned with the extent to which parents control their children's game behavior. Besides paying attention to the game behavior this also includes searching information on a game and reading about the game content before (allowing) children (to) play. The factor can be labeled as controlling or 'restrictive mediation'.

The second factor is defined by three items that determine to what extent parents and children play games together. Analogously to Valkenburg et al. [21] this factor can be defined as a specific form of unfocused mediation; 'consciously playing together'.

The third factor, for both parents and children alike, contains four items on the frequency of parents' critical evaluation of game content. The factor includes positive as well as negative mediation and represents the 'evaluative mediation' in general. In the parents' solution, a fifth item that substantively fits well in this factor ('explaining game content') also has a high loading. However, in the children's perception the parental instruction has more to do with restrictive mediation.

Table 1: ***Factor matrices[a] on parental mediation behavior on video gaming as perceived by parents (P) and by children (C)***

items	*Factor 1* P	C	*Factor 2* P	C	*Factor 3* P	C
Restrictive mediation						
monitoring gaming behavior	.97[b]	.84	.00	-.00	-.18	-.00
checking game's appropriateness	.85	.85	.00	-.00	.00	.00
reading content description	.74	.72	-.00	.22	.00	-.14
banning certain video games	.74	.71	.00	-.00	-.00	.00
gathering information on games	.37	.54	-.00	.19	.27	.13
Conscious co-playing						
playing together	-.00	.00	.95	.87	-.00	-.00
playing together, child asked for it	-.00	.00	.89	.85	.00	-.00
playing together, parent wants to	.00	-.00	.87	.66	-.00	.19
Evaluative mediation						
telling games are just fantasy	-.12	.12	.00	-.00	.93	.73
pointing to bad things in a game	.17	.32	.21	-.28	.78	.72
pointing to good things in a game	-.10	-.24	-.23	.21	.65	.85
explaining what happens in games	.11	.42	-.36	.35	.40	.15
evaluating game contents	.13	.13	-.27	.20	.32	.43

Note. [a]Pricipal component analyses with Oblimin-rotation (delta = 0.2) have been used (N = 536; for both parents and children). [b]Underlined coefficients reflect primary loadings on the concerning factor.

Based on the principal component solutions from Table 1 we constructed separate scales for children and parents for 'restrictive mediation', 'evaluative mediation' and 'conscious co-playing'. Each scale consists of items that load primarily on the particular factor and that define the same factor for parents and children. Since it is found that the combination of parental and children's answers is the most reliable measure for determining media guidance [23], we also constructed scales for the combined answers of parents and their children. The reliability coefficients (Cronbach's alpha) for the children's scales vary from 0.76 ('evaluative') to 0.83 ('restrictive') and for the parental

Table 2. ***Average scores for restrictive and evaluative mediation, and conscious co-playing, as reported by parents and children*** [a]**.**

Type of media guidance	Parents	Children	*t*(535)
Restrictive mediation	2.14^{x}	1.86^{x}	17.36***
Evaluative mediation	2.04^{y}	1.77^{y}	15.35***
Conscious co-playing	1.73^{z}	1.60^{z}	9.20***

Note: [a]Scores vary from 1 (= rarely or never) to 3 (= often); [x,y,z]Scores among parents and among children with different superscripts differ significantly, $p < 0.001$; ***indicates a significant difference between the scores found for parents and for children with a *p*-value < 0.001.

scales from 0.72 ('evaluative') to 0.85 ('co-playing'). When parental mediation is measured by combining the scales for parents and for children, the alpha values increase to 0.84 ('evaluative') and 0.90 ('restrictive' and 'co-playing'). Thus, the combined scales provide the most reliable measure for game mediation. The correspondence in perception of media mediation between parents and children also appears in the intercorrelations between the scales of children and their parents. Pearson's correlation *r* amounts to 0.79 ($p < 0.001$) for restrictive mediation; to 0.78 ($p < 0.001$) for co-playing; and to 0.69 ($p < 0.001$) for evaluative mediation.

Table 2 shows the frequencies of restrictive and evaluative mediation for parents and children and shows how often parents and children consciously play together. For both parents and children restrictive mediation is the most common, whereas conscious co-playing is the most uncommon. All possible differences in to what extent the three forms of mediation are applied are significant according to individual Students's *t*-tests on both parents' and children's perceptions. The table also shows that parents and children systematically differ from each other in their perceptions on the prevalence of the three types of game mediation. Parents assess their interference with the game behavior of their children greater than children do. The differences are the greatest for restrictive and evaluative mediation.

Perceived effects

Hypothesis 1 states that parents expect two types of effects of video games on their children. By means of a principal component analysis on the items on possible impacts of video games on children with varimax rotation we obtained five factors that indeed represent positive and negative effects. The

negative effects parents distinguish relate to (a) behavior and attitude and (b) children's physical health, whereas the positive effects pertain to (c) learning, (d) social-emotional well-being and (e) cognitive skills. The five factors account for respectively 22.5; 6.7; 11.2; 9.4 and 6.8 per cent of the variance explained. Based on the factor solution we formed five scales. For each respondent we summed the items that loaded primarily on the factor in question and divided the sum by the number of items on that scale. Cronbach's alpha for the five scales is respectively 0.90 (behavioral- and attitudinal effects); 0.63 (physical health); 0.75 (learning effects); 0.70 (social-emotional effects) and 0.72 (cognitive skills).

A comparison of the extent to which parents agree with the five types of effects shows that parents are most convinced of a positive impact on the children's cognitive skills (M = 2.62). Parents are significantly more convinced of this effect than of the positive learning effects of games (M = 2.39), which in turn are deemed more important than the negative physical effects (M = 2.29). The two least endorsed impacts of video games are negative behavioral- and attitudinal effects (M = 1.94) and positively valued social-emotional effects (M= 1.93).

Determinants of mediation

Because parents and children only vary in the extent to which they think the three types of mediation are exercised, we will hencefort use combined mediation scales for parents and children. After all, there is no reason to think parents are a better judge of game mediation than their children or vice versa.

We used hierarchical multiple regression-analyses to determine the relation between demographics and parental beliefs on game effects on the one hand, and parental mediation on the other. In the first step, the demographics were entered (H_{3a-3c}), followed in the second step by the parents' views on effects (H_{2a-2b}). Thus we determined how parental attitudes on effects contribute independently to the prediction of mediation. As Table 3 shows, heavy gamers and children who play not very often do not differ in the amount of restrictive mediation exerted by their parents. Restrictive mediation is, however, more often used in lower educated families, by mothers, by parents who themselves play often, on younger children and on girls. Furthermore are parents who expect negative behavioral and attitudinal impacts of games more likely to use restrictive mediation than those who do not expect these effects.

Evaluative mediation is significantly more often used by parents in lower educated families, by mothers, by parents who themselves play often and on younger children and on heavy gamers. Furthermore, parents use evaluative mediation more often when they are more strongly convinced of negative behavioral and attitudinal impacts on children.

Conscious co-playing with children is related to two demographic characteristics. Conscious co-playing occurs more often by parents who themselves play more and on younger children. Children's game frequency is not related to consious co-playing. This type of mediation, however, is somewhat more often used by parents who are more convinced of the positive effects of games on the social-emotional well-being of children.

Although the regression analyses show that parental beliefs on game impacts are connected to the three types of media guidance, we cannot

conclude that the points of view held by parents contribute heavily to their behavior. The beliefs on positive and negative game impacts on children in each of the three regression analyses only add 1 to 3 per cent of the total variance explained.

Table 3 ***Multiple regression-analyses of parental mediation by demographics and by perceived parental impact of video games***

	Mediation type		
	Restrictive	Evaluative	Co-playing
	beta	*beta*	*beta*
Step 1: *Demographics*			
educational level parents	-0.13**	-0.14***	-0.06
gender parent (+1 = mother)	0.09*	0.08**	-0.00
game frequency parent	0.16***	0.23***	0.45***
family size	-0.06	-0.04	-0.01
age child	-0.45***	-0.30***	-0.32***
gender child (+1 = girl)	0.09*	0.03	0.01
game frequency child	0.03	0.08	0.03
R^2	0.30	0.20	0.37
F(7, 528)	31.86***	19.73***	44.38***
Step 2: *Perceived impacts on*			
intellectual capacity (+)	0.06	0.01	0.00
knowledge (+)	-0.04	0.02	0.08
social-emotional well-being (+)	0.01	-0.07	0.08*
behavior and attitude (-)	0.14**	0.21***	0.04
physical health (-)	-0.04	-0.05	0.02
Incr. R^2	0.01	0.03	0.01
F(5, 524)	2.15	3.96**	1.99

Note: *p < 0.050; **p < 0.010; ***p < 0.001.

DISCUSSION

In the last decade of the previous century the media landscape of children has changed drastically. Children no longer just watch television, they also spend a considerable amount of time on new electronic media as pc, game console and Gameboy. For parents this means that they adjust their child rearing: parents seem to be less involved in the child's media use [17], whereas children more often share their media experiences with peers than with their parents [4]. This study nevertheless, established that parents mediate their children's video game activities in a way that is similar to television mediation (R_1). The study thus confirms the relatively limited research of Skoien and Bethelsen [19] and shows that television and video game mediation are both part of one general construct. That is, parents, first, supervise the games their children use to entertain themselves with and where needed constrain this media use. Secondly, parents point out the pros and cons of video games to their children, and finally, they consciously play together with their children. The valid description this mediation construct provides, also appears from the finding that the three strategies are not only prevalent among parents, but are also perceived by their children (R_2): a large degree of congruence exists between the children's responses and the parents' responses for both the types of mediation strategies and for the relative frequency with which these are employed. Finally, parental beliefs on the effects of games on children are moderately related to their game mediation, in a similar way as to television mediation.

The restrictive game mediation comprises in the current study partly the same types of items as in the previous research on television, but it is also defined by items that deal with vigilance on the appropriateness of games. The attentiveness of parents is possibly a derivative of the strict regulation of the times when and the media productions with which children are allowed to entertain themselves. Next, we did not find separate forms of positively and negatively orientated evaluative mediation [3]. Instead we found only the general evaluative mediation, which might be caused by the insufficient amount of items on positive or negative mediation activities in the questionnaire. However, we experienced that the two items which specifically inquire after the extent to which parents explain the media (explicit instructive behaviors) were not included in the scale because these items acted differently in the factor analyses. This indicates that, besides the instructive type of evaluative mediation [21], there may also be a more normatively directed type of evaluative mediation. Future research with a more elaborate list of mediation activities in video games will have to bring clarity here. Finally, the third form of mediation that parents employ on the video gaming of their children turns out to be the specific form of unfocused mediation, i.e. conscious co-playing. The items that we used to inquire if parents and children talk about games together and if children are encouraged to play, were, according to the factor analyses, not part of the unfocused mediation or any other type of mediation. Because playing together is not free of obligations, this type is comparable to the 'social co-viewing' [21]. In line with Valkenburg et al. it seems sensible to

henceforth take the conscious co-playing or co-viewing as a starting point in mediation studies.

When the relative frequency with which parents mediate their children in dealing with video games is compared to the frequency with which they mediate television viewing, we note a striking difference. In former television research [21, 23] restrictive mediation occurs significantly less often than evaluative mediation and social co-viewing. This study, on the contrary, shows that conscious co-playing occurs less often whereas restrictive mediation is used the most. This result is confirm the data of Skoien and Berthelsen [19]. Possibly parents and children play less together because video games are a relatively new phenomenon and parents have no bond with them from their youth [17]. What is more, many games that can be played on the pc, game console or Gameboy are more suitable to be played by one person than by two. Finally, the relatively low frequency of conscious co-playing might also be caused by the relatively large amount of control parents exercise on video games. When parents have already checked game behavior and game content through restrictive mediation they might not deem it necessary to also play together with the child. With the relative unpredictable offerings on television parents have to act differently.

That parental mediation in video games is part of a general mediation construct also shows from similar relationships between the types of mediations on the one side and the parental demographics and parental beliefs on effects on the other side. Even though the beliefs only put a small weight on the scale, the parents do restrict the game behavior more and they discuss game content more often with their children when they have reservations about the possible negative effects of video games on the behavior and attitudes of children. Apparently parents try to protect their children from these nasty effects by restricting gaming and by pointing out possible detrimental game contents. Conversely, parents with an optimistic view of game effects on the social-emotional well-being of children are more likely to play together with their children.

Parents use, just as for television viewing, all types of mediation more often with younger children at home. In actual practice, this is also easier because the influence of peers on media behavior and media affects increases and the influence of parents decreases as the child grows older [15, 17]. The finding that girls end up getting more restrictive mediation in their use of video games than boys could be because parents are generally more cautious when it comes to their daughters than when it comes to their sons. This concern might be encouraged by the idea that many games have an aggressive content and that video game violence, like television violence, is more appropriate for boys than it is for girls [10].

Game mediation is more used by mothers than fathers. That is, mothers tend to restrict and to discuss game content with their children more often. Conscious co-playing is used equally often by fathers and mothers. It is also found that parents who often play themselves more often conscious co-play and discuss games more often with their children. Furthermore, in smaller families mediation is not more common than in larger families and heavy gamers are in general not more often guided by their parents than less fervent players. The frequency with which game mediation is exercised is thus probably not so much determined by whomever has the opportunity to do it (mothers or fathers in smaller families) or when it seems more necessary (heavy

players), but much more by whomever considers it its responsibility and enjoys doing it [6].

Unlike the assumption, this research does not indicate that higher educated parents are more inclined to mediation than lower educated parents. On the contrary, unlike for television, it are the lower educated parents that impose restrictions more often and critically discuss contents, while they equally often as higher educated parents play together. Since these relations have been found on both parents and children, it is not very likely that lower educated parents gave more socially desirable answers. Perhaps an alternative explanation is that playing video games is more common amongst children in lower educated families and that their parents need to put on the breaks a bit more and try to point out the pros and cons more often.

Finally, the present study only examined parental mediation on gaming. Future research could expand this study as follows: first, it would be interesting to study a large sample of families on the types of mediation they use for television and video viewing, gaming, internet surfing, and using cell phones. Not only should be established if the same types of mediation hold for all media, but also whether views on media-effects are general or medium specific. Second, the mediation strategies employed by parents should be related to the parents' general ideas and behaviors on child rearing.

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