CHILDREN, COMPUTER GAMES, AND THE INTERNET

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Date of revision: 11 April 2003
Abstract

Children’s use of the Internet has increased tremendously in the past few years. Whereas in 1997, only 4% of Dutch children had home access to the Internet, at present 84% of this age group is online. The aim of this article is to provide insight into the meaning of interactive media in children's everyday life. We present results of two survey studies on children’s uses and preferences of the Internet. We will present results on which children use which Internet applications, and how this differs among boys and girls from various age groups and backgrounds. In addition, we will present some explanations for the overwhelming popularity of several communication media (e.g., web games, instant messaging) among Dutch children.
Authors’ information

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The past decade has witnessed a dramatic increase in Dutch children's media use. Since the introduction of commercial television in the Netherlands in 1989, children’s exposure to television has doubled to an average of two hours a day (Valkenburg 2002). Over the past years, children’s use of the Internet has also grown at a staggering rate. Whereas in 1997, only 4% of Dutch 9- to 18-year-olds had home access to the Internet, in the past five years this percentage has increased more than twentyfold (De Haan, Huysmans and Steyaert 2002; Valkenburg 2002).

Families with children are more likely to have computers and Internet access than households in general (Hughes and Hans 2001). By 2002, 84% of Dutch families with adolescents had home access to the Internet, and 80% of the adolescents in these families had their own email address (De Haan et al. 2002; Valkenburg 2002). However, despite this extensive use of computers and the Internet in the family, empirical research focusing on its impact on children and family life is still scarce. The aim of this article is to provide insight into the meaning of interactive media in children's everyday life. We present results of two survey studies on children's positive and negative experiences with the Internet. Specifically, we will examine which children use which Internet applications, and how this differs among boys and girls from various age groups and backgrounds. We will focus on the Internet technologies that are currently most popular among children: Children's entertainment websites, chat, instant messaging, and web games. For each of these applications, we will try to explain their appeal to boys and girls in different age groups.
Children's Entertainment Websites

The number of websites specifically aimed at children has grown at a staggering rate over the last few years. These websites can generally be divided into three categories. There are the non-profit sites that have been developed by the government, museums, libraries and non-commercial broadcasting companies, which often combine education with entertainment. Then there are the commercial sites, which can be further divided into media-based and product-based sites (Montgommery, 2000). Media-based sites are the sites of commercial television channels, such as Fox Kids, Nickelodeon, and Cartoon Network. Product-related sites are the sites of toy companies and manufacturers of children's products, such as Mattel and Nintendo, who practically all have websites for children.

To gain insight in the popularity of children’s websites, we surveyed 377 Dutch children between 7 and 13 years in the Spring and Summer of 2001. These children were recruited from three different elementary schools in the Netherlands, one in Amsterdam, one in Nijmegen, and one in Best (North Brabant). Of the 377 children, 83% had home access to the Internet. This percentage is consistent to percentages obtained from national samples (e.g., de Haan et al. 2002).

The children reported that once they were online, they were so on average between half an hour to an hour. Preadolescents (10- to 13-year-olds) used the Internet more frequently than children (7- to 9-year olds), and were also online for a longer period. Boys reported using the Internet slightly more than girls did, but this difference did not reach statistical significance. Boys and girls also stayed online for more or less the same duration.

The most favorite sites of the children were the commercial sites. Children almost exclusively preferred to visit commercial sites, particularly the media-based ones (e.g., Fox Kids and Cartoon Network). This result is consistent to American research, which has demonstrated that the majority of sites from the top 25 of popular American children's sites
have a commercial aim. These sites were from media conglomerates such as *Nickelodeon*, *Disney*, *Fox*, and *Time Warner* and toy manufacturers such as *Nintendo*, *Lego*, and *Mattel*.

The purpose of commercial children’s websites is two-fold. Their primary goal is to stimulate the brand awareness and the brand attitudes of children. Although no advertiser of children's products would underestimate the value and effectiveness of television advertising to reach the child consumer, they all agree on the unique possibilities of the Internet for advertising purposes. On the Internet, children can play for hours in a ‘branded community’ where it is difficult to make a distinction between entertainment and advertising.

A second goal of commercial websites is to collect market data from children. This happens in various ways. First, children are asked for personal information when registering. On some sites, children are also regularly confronted with surveys, asking them for information such as their preferences regarding the content and activities of the site and the products they offer. The answers to these questions are used by advertisers to modify their website and products so that they can better meet the wishes of children. The sites sometimes also share their acquired market information with other advertisers and marketers of children’s products.

When examining the historical development of children’s media, it has never before been possible to merge advertising, entertainment, and market research in such a way as on the Internet. The most popular children's sites use their content primarily to offer children’s entertainment in branded communities (Montgomery 2000). These sites use data obtained from their child visitors to optimize their content, and to follow the latest developments in youth culture. If this trend continues, the social and cultural needs of children of today and future generations will be primarily defined in relation to commercial media products and manufacturers (Buckingham 2000).
What is the ideal children’s entertainment website?

Children's websites, regardless of whether they are commercial or not, resemble one another closely with regard to the activities they offer. Web games can be found on virtually all sites. It is also often possible to chat, send digital cards, view films, and listen to or download music. On some websites you can enter competitions or send emails to celebrities. Finally, some sites provide the possibility of SMS (Short Message Service) and Instant Messaging (IM), a technology that enables users to talk directly with people via text that appears almost immediately on a screen.

In our survey study, we asked the children to indicate how their ideal entertainment website should be. This was investigated by presenting them with a list of known activities of children's websites and asked them how important it was that these activities were featured on a website. Table 1 lists the various website activities with the most popular on top and the least popular on the bottom.

Please Insert Table 1 About Here

Table 1 shows that playing games was the most preferred activity offered by a children’s website. This finding held for both younger (7- to 9-year-olds) and older (10- to 13-year olds) children, and for boys and girls. Other important website activities included the possibility to find information, to listen to music, and to download games and film clips.

Children’s preferences for web activities differed significantly for older and younger children, especially in the case of communication technologies. Ten- to thirteen-year-old children showed a significantly stronger preference for communication technologies, such as chatting, emailing, and using SMS via the website than the 7- to 9-year-olds did. This age difference is in line with theories on children’s emotional and social development. From about
Children’s Experiences with the Internet

Children are increasingly interested in developing social relationships. At this time, their need for intimacy emerges (Sullivan 1953), and their concern with interpersonal identity becomes far more acute (e.g., Allison and Schultz 2001).

Children’s favorite web activities also differed significantly between boys and girls. Boys more often preferred to download games and video clips, whereas girls more often preferred to email and to send digital cards on the Internet. Finally, girls had a clearer preference for chat and Instant Messaging (IM). This gender difference in favor of girls is remarkable, because it has often been males who lead the way in using new technologies, such as video games and MUDs (i.e., a role-playing game played on the Internet). However, if one investigates the history of communication technologies, it has usually been females who first embraced such technologies. This began already when the telephone was introduced (Rakow 1988), and one century later, the mobile telephone seems to be following the same pattern. Market research has shown that it is again women, and in particular teenage girls, who are the trendsetters of mobile phone use. Girls tend to use the mobile phone primarily to chat with friends, to keep in contact and to feel connected with their peers. In the past two to three years, Instant Messaging seems to satisfy preadolescent girls’ relatively high need for communication and social interaction.

Children's Favorite Activity on the Internet: Playing Games

In addition to children’s preferences of entertainment sites, we also investigated children’s positive and negative experiences with the Internet. To identify those experiences, we conducted a classical uses-and-gratifications study among 194 Dutch children between 8 and 13 years with home access to the Internet (for a sample description, see Valkenburg and Soeters 2001). We began our survey by asking children to give a spontaneous description of
something they had enjoyed on the Internet. The results of children's responses are listed in Table 2.

As the Table shows, playing web games was the most frequently mentioned. Watching and listening to video clips was also mentioned often, by 17% of the girls and 10% of the boys. Finally, children often said they enjoyed visiting their favorite children's website, again equally among girls and boys.

The spontaneous descriptions of children did yield some important differences among girls and boys. First, only boys (7%) mentioned the downloading of codes and cheats as something they enjoyed doing. Codes or cheats are pieces of software to improve the conditions of a computer game, for example by obtaining more lives or energy. Codes and cheats are often used in certain types of computer games that are particularly popular among boys, such as adventures, and violent ‘shoot-em-ups’ or ‘beat-em-ups’. In addition, only boys spontaneously mentioned enjoying visiting sensational Internet sites (violence and pornography). Boys of this age generally have a higher need for sensation than girls have (Zuckerman 1979) and their choice for sensational sites may reflect this need.

“...In Doom you see someone walk through a maze. Suddenly a one-eyed, scary monster comes at you. Then you take your shotgun and shoot it, and you hear ‘aaargh’. You see the eye half-hanging out and blood all over the floor. Great fun!'”

Peter, 13 years old.

In summary, playing web games was the most frequently mentioned positive Internet experience. As was the case in our survey described before, this held for both younger and
older children and for boys and girls. Playing web games has apparently become one of the most favorite digital pass times of today’s children. How can this rapidly growing popularity of playing web games be explained? A first explanation might lie in the content and quality of these games. Manufacturers of web games take very good account of the preferences of their target group and closely follow new trends in youth culture. The latest generation of games provides action, speed, appealing music, good sound effects and graphics of film quality. However, these games also have a number of other features that keep children glued to the screen.

*Challenges at the right level.* Good quality computer games are created in such a way that they provide the player with a constant challenge that is just within his or her capabilities. Most games are relatively easy at the start and then become increasingly difficult throughout the course of the game. At every level, the player faces a new challenge that is just within his or her grasp. The pleasure derived from overcoming such challenges could be explained by Zillmann's theory of excitation transfer (1978). Trying to overcome obstacles is an activity that increases the level of arousal in children. Once the obstacle has been overcome the child experiences relief. However, because the level of arousal is still high in the child, the feeling of relief is even more intense. In other words, children who have just experienced some tension, feel extra relief and satisfaction once the obstacle has been conquered. This might explain why overcoming obstacles in computer games is so enjoyable.

*Possibilities for active control.* In contrast to watching television, computer games offer the possibility for active control. Most games give room for free choice. The player can choose for himself elements such as color, background, level of difficulty, character, blood or no blood. In some games the progress of the game can even be determined by the player himself. According to Fritz (1995) it is those children who are struggling with their own physical and emotional development who like to have some control over their game. Video
and computer games give them the opportunity to have everything temporarily under control, and that gives a pleasant feeling.

*Chance of success.* When watching a film an observer can only experience the successes and experiences of others through empathy with the protagonists. In computer games, however, the player can experience the successes and rewards himself. As with playing sports and music the player receives immediate feedback. If the preceding action has been successful, the player is rewarded immediately. This ongoing rewarding is a strong stimulus to carry on playing.

*Stimulating curiosity.* Computer games play on the curiosity of the players in several ways. First, just as in a book or television series with an exciting story, the child wants to know how the game will end. However, unlike films or television, a computer game has more elements that stimulate the curiosity. A player can, for example, come across a secret cassette tape or a closed box or door that he has to open himself. This is different to films, in which the curiosity is only stimulated by temporarily keeping information from the viewer. Computer games stimulate the curiosity more than films since an answer to this sort of conundrum is often necessary before the player can continue (Grodal 2000).

*Possibility for identification.* Video and computer games have all the necessary characteristics that are known to lead to intense involvement and identification. They have super heroes of all shapes and sizes, who operate in a fantasy world full of mysterious powers and bizarre adventures. Moreover, all this happens in an atmosphere and with music that closely fits in with the latest trends in youth culture. Many computer games make use of the ‘first person perspective’, whereby the player experiences the game environment from the perspective of the hero. This, of course, helps to increase identification with the protagonists. The player actually becomes the hero:
‘I actually feel that I am in the game itself….. sometimes during Doom I’m so frightened … my heart goes boom, boom, boom…. that I just want to stop playing. In Doom there was this room ….. you had to play in the dark, the only thing you could see was the machine gun fire coming from the other gun, only then could you shoot back, and then you heard a scream if you hit him. I thought: I’m not playing this anymore, and so I got a code to switch on the lights.’

Matthew, 14 years old.

Possibility of playing together. Many games provide the possibility to play together, either online or offline. Children often also like to play video or computer games with other children (e.g., Van Schie, Wiegman, Kuttschreuter, and Boer, 1996) Game sites usually allow you to play against friends or unknown players. It is not known how often children use these interactive game sites. However, what we do know is that for both boys and girls, playing web games is a favorite Internet activity (Valkenburg, 2002).

Gender and playing web games

Both our surveys among school-aged children suggested that playing web games was the most important Internet activity for both boys and girls. Our findings are in marked contrast with a series of academic studies demonstrating that boys significantly more often play electronic games than girls do.

A possible explanation for this inconsistency in research findings might lie in the failure in earlier research to make a distinction between video and computer or web games. Video games are played on a console (e.g., Sony, Nintendo), whereas computer and web games are played on the home computer. A series of studies, particularly those conducted in the eighties, showed that boys spend about three times as much time on playing video games than girls.
However, it is important to note here that these early studies concerned video games, because there were hardly any computer games and no web games at all available at that time (e.g., Dominick 1984; Kubey and Larson 1990; Lin and Lepper 1987).

Although boys still tend to play video games three to five times as much as girls do, the total time that boys and girls spend on computer games does not differ much, according to our survey studies. In addition, a recent large-scale American survey by Roberts, Foehr, Rideout, and Brodie (1999) showed that up to the age of seven, girls and boys spend the same amount of time on computer games. In the age group 8 to 13, boys play somewhat more, but this is only a matter of a few minutes (19 vs. 11 min.). Only among adolescents there is a significant difference between boys and girls: boys from the ages of 14 to 18 spend an average of 16 minutes per day on computer games and girls only five minutes.

Another explanation for the inconsistency in results between our study and those found in the 1980s and early 1990s might lie in differences in the culture of video and computer games. There are indications that computer game culture is less violent and macho than the video game culture. Although there are many violent computer games on the market, there is a far greater variety of computer games than video games. Educational games, for example, are almost exclusively computer games.

Most video games that came out in the 1980s presented a macho world, where there was little room for women. The majority of super heroes in the games were tough, exaggeratedly masculine men. As far as women were concerned they are often a sweet princess or a helpless victim who has to be rescued from the clutches of gorillas or other villains. If there were any female characters at all, then they are merely caricatures of women: large breasts, curvaceous hips, long legs, and dressed in sexy bikinis.

Provenzo (1991) was one of the first to use content analysis to reveal the marginal role of women in the video game world. Recent content analyses have confirmed this. Dietz
(1998), who analyzed 33 popular video games, showed that in 41% of the video games no women featured at all. In addition, in 28% of the games women were depicted as sex objects and in 21% as victims.

The large difference in video game use between boys and girls was regarded as a serious problem in the early 1990s. Video games were seen as a stepping stone to the adult digital world where a proficiency at working with computers is essential. It was feared that the gap between boys and girls would increase because of this differential use of video games, with the danger of girls being left at a disadvantage in later life.

As of the nineties, a relatively large number of computer games have been produced that did not feature violence and had a female in the leading role. The computer game industry wanted to make a concerted effort to interest the other half of their target group, and felt that girls simply were not as interested in their games and could identify better with a female leading character rather than a male one. The gender specific marketing of these games was promoted with commercials and packaging featuring a great deal of pink and purple (Subrahmanyam and Greenfield 1998). Many of these non-violent games with a female leading character, as did the violent ones, had little success with girls. This is probably because in video and computer games there has always been an inextricable link between violence and action. Once the violence had been taken out of the game, the action disappeared as well, and so the games simply became boring (Subrahmanyam and Greenfield, 1998).

However, in the mid 1990s there was a game for girls that suddenly became extremely popular: the computer game *Barbie Fashion Designer*, which was introduced in 1996. Several million copies of this game were sold worldwide. Although all Barbie games that have since appeared have done fairly well, this one had by far the most impressive sales. The success of this game therefore cannot be ascribed to the lack of violence. After all, all other Barbie games were based on that same idea. Through this game people discovered that it is not so
much the lack of violence that attracts girls to playing. It was also shown that girls are not put off by the traditional roles in the video and computer games. Its success was probably due to its combination of realism, femininity of the leading character and the creative tasks that were set in the game (Subrahmanyam and Greenfield 1998). In *Barbie Fashion Designer* girls have to use the computer to design clothes for Barbie, an activity that matched the imagination and playing themes of elementary school girls, which more often than with boys of the same age reflect their daily experiences. Girls of this age tend to prefer *realism* in their computer games and not the more cartoon-like games that dominate the market, and which boys like so much (Subrahmanyam and Greenfield 1998).

In summary, although the initial worries about unequal access for boys and girls to interactive media were perhaps well-founded, there is now less reason to be anxious about a possible disadvantageous position for girls. Although boys still tend to play *video* games three to fives times as much as girls do, the total time that boys and girls spend on the computer and computer games does not differ much.

**Children’s Negative Experiences with the Internet**

The second aim of our survey on children’s positive and negative experiences with the Internet was to investigate how often children had experienced disturbing situations while being online. On the Internet children run three risks. In the first place, as is the case with the traditional media such as television and film, they can come across violence and pornography, which may upset them. The Internet, however, has two extra risks. Children can be harassed while *online*, in chat rooms or via email and IM, but they can also be harassed *offline* if they have given out their address and/or arranged a personal meeting.

This first risk of the Internet occurs regularly. In our survey, 8% of the children spontaneously mentioned violent or pornographic sites as a negative Internet experience. This
result is in agreement with a study by Mitchel, Finkelhor and Wolak (2001) among older children and teenagers, in which a quarter of the respondents admitted to unintentionally have come across sexual material. Exposure to inappropriate material usually occurs during surfing (via searches, incorrectly spelled addresses, and by clicking links by accident or otherwise) or by opening spam mail and clicking on their links.

The second risk, online harassment (insults, threats of physical violence), was experienced by 6% of the children during the last year. These threats occurred mainly in chatrooms, via IM, and email. The threats were experienced more by older than younger children.

None of the children in our sample spontaneously referred to offline harassment. However, although rare, off-line harassment imposes the most serious risk of the Internet. Due to teenagers’ curiosity and interest in relationships and sexuality, they seem more likely to give out personal information, which may potentially make them vulnerable. Parents and educators should be well aware of this risk, which can be greatly minimized by some family rules about computer use.

Children’s responses about their negative experiences showed a significant age interaction. Whereas violence on the Internet was more often mentioned by younger children, online harassment was slightly more often mentioned by older children. This result is in line with both theories on cognitive development and sensation seeking. Research has shown that media-produced fear of violence declines between 8 and 12 years, probably because children are increasingly able to use cognitive reasoning to override their immediate fears (Valkenburg, Cantor, and Peeters 2000). On the other hand, at the end of middle childhood, children are more likely to use the Internet for social interactions about relationships and sexual activity, which might increase the chance of online harassment. As they enter adolescence, children start to be interested in sensationalist media content due to their
increasing need for sensation (Zuckerman 1979). Although we included only young adolescents in our sample, which could mask prominent differences between younger and older children, our data do suggest that teenagers might be more vulnerable to online harassment than younger children.

**Conclusion**

Our article has shown that Dutch children are in many ways the ‘defining users’ of digital media technologies: They often spend more time online than adults, and they particularly more often use digital technologies, such as web games, Instant Messaging and internet relay chat. Our survey results have also shown that the digital media culture of today's children is characterized by a high level of commercialization. The most popular children's sites are not those of public institutes and broadcasting companies, but those of commercial companies who use their sites primarily to offer children entertainment in 'branded communities' (Montgommery 2000). If this trend continues, the social and cultural needs of children of today and future generations will be primarily defined in relation to commercial media products and manufacturers (Buckingham 2000).

Although research into the effects of digital media technologies is still scarce, these technologies may probably have both positive and negative effects on children. Digital media technologies could enhance children's spatial intelligence and general computer skills (see for a review, Valkenburg 2002). However, many digital communication technologies also bear potential risks. Children are more easily exposed to inappropriate material via these technologies than via traditional media and they can also more easily encounter people whom they could better not know. Such effects, which can be counteracted by family rules about computer use, have to be taken very seriously by parents and policy makers.
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References


Table 1

“On my favorite website I would like to...”

<table>
<thead>
<tr>
<th>Activity</th>
<th>7-9 year-olds %“yes”</th>
<th>10-13 year-olds %“yes”</th>
<th>Boys %“yes”</th>
<th>Girls %“yes”</th>
</tr>
</thead>
<tbody>
<tr>
<td>...play games</td>
<td>84</td>
<td>85</td>
<td>84</td>
<td>87</td>
</tr>
<tr>
<td>...find information</td>
<td>84</td>
<td>78</td>
<td>81</td>
<td>79</td>
</tr>
<tr>
<td>...listen to music</td>
<td>71</td>
<td>74</td>
<td>72</td>
<td>73</td>
</tr>
<tr>
<td>...download games</td>
<td>63&lt;sup&gt;x&lt;/sup&gt;</td>
<td>77&lt;sup&gt;y&lt;/sup&gt;</td>
<td>82&lt;sup&gt;b&lt;/sup&gt;</td>
<td>59&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>...download clips</td>
<td>58</td>
<td>68</td>
<td>72&lt;sup&gt;b&lt;/sup&gt;</td>
<td>55&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>...be able to chat</td>
<td>51&lt;sup&gt;x&lt;/sup&gt;</td>
<td>71&lt;sup&gt;y&lt;/sup&gt;</td>
<td>56&lt;sup&gt;a&lt;/sup&gt;</td>
<td>71&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>...be able to email</td>
<td>52</td>
<td>60</td>
<td>52&lt;sup&gt;a&lt;/sup&gt;</td>
<td>64&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>...send digital postcards</td>
<td>54</td>
<td>52</td>
<td>46&lt;sup&gt;a&lt;/sup&gt;</td>
<td>61&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>...be able to use SMS</td>
<td>28</td>
<td>46</td>
<td>38</td>
<td>41</td>
</tr>
</tbody>
</table>

Note. Results are based on 314 8- to 13-year-old elementary school children. <sup>x-y</sup> Differences between 7 to 9 and 10 to 13-year-olds were significant at \( p < .05 \); <sup>a-b</sup> Differences between boys and girls were significant at \( p < .05 \).
<table>
<thead>
<tr>
<th>Positive experience</th>
<th>Entire sample</th>
<th>8-10-year-olds</th>
<th>11-13-year-olds</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
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<td>Playing or downloading</td>
<td></td>
<td></td>
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<td>13</td>
<td>11</td>
<td>14</td>
<td>10</td>
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<td>12</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Codes or cheats</td>
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<td>3</td>
<td>10</td>
<td>12&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>Sensationalist content</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>7&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Entertainment total</strong></td>
<td><strong>46</strong></td>
<td><strong>41</strong></td>
<td><strong>51</strong></td>
<td><strong>51&lt;sup&gt;b&lt;/sup&gt;</strong></td>
<td><strong>41&lt;sup&gt;a&lt;/sup&gt;</strong></td>
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<td></td>
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<td>6</td>
<td>5</td>
<td>11</td>
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<td>3</td>
<td>10</td>
<td>3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>sports</td>
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<td>1&lt;sup&gt;x&lt;/sup&gt;</td>
<td>8&lt;sup&gt;y&lt;/sup&gt;</td>
<td>5</td>
<td>4</td>
</tr>
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<td>movies/TV programs</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>other information</td>
<td>8</td>
<td>12&lt;sup&gt;y&lt;/sup&gt;</td>
<td>5&lt;sup&gt;x&lt;/sup&gt;</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td><strong>Information total</strong></td>
<td><strong>26</strong></td>
<td><strong>22</strong></td>
<td><strong>30</strong></td>
<td><strong>19&lt;sup&gt;a&lt;/sup&gt;</strong></td>
<td><strong>36&lt;sup&gt;b&lt;/sup&gt;</strong></td>
</tr>
<tr>
<td>Email</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Chatting</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Meeting children/people</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td><strong>Social interaction total</strong></td>
<td><strong>12</strong></td>
<td><strong>10</strong></td>
<td><strong>16</strong></td>
<td><strong>10</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

*Note.* Adopted from Valkenburg and Soeters (2001). Differences between <sup>a,b</sup> boys versus girls and <sup>x,y</sup> younger versus older children are significant at least at <i>p</i> < .05; * The percentages of the different sub categories are not mutually exclusive; therefore, they do not add up to the total scores.