

Instrumental, information and strategic ICT skills of teenagers and their parents

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Abstract

It is often said that young people are skilled in the use of ICT because they apparently have no difficulty in using a computer or mobile telephone. They are online often and for long periods, and increasingly interchange their online and offline lives without difficulty, switching smoothly from a conversation 'in real life' (irl) to a communication medium such as MSN, SMS or a mobile phone in order to continue the conversation. It sometimes seems to be assumed as self-evident that teenagers are more skilful in the use of ICT than their parents. But does this 'digital family divide' really exist?

A distinction can be drawn in the discussion on whether young people are more skilful in the use of ICT than their parents between instrumental, information and strategic skills. Instrumental skills are concerned with operating computer programs; information skills are about handling information and strategic skills are about benefiting from internet. It is often said that parents lack instrumental skills compared to their children, whereas teenagers lack information ICT skills. In the Netherlands, teenagers do indeed appear to be better versed in instrumental skills than their parents, but the difference stems mainly from mothers, who are the least skilled. When it comes to more difficult instrumental skills, fathers are in fact a good deal more skilled than the teenagers. Some specific information skills are evidently better mastered by parents than teenagers, but not all of them. As for the few strategic skills we looked into, parents say they have a mastery of them substantially more often than teenagers do. The data used are drawn from several Dutch surveys (2005, 2008) among 13-18 year-olds (n=approximately 1500) and their parents (n=approximately 1100 and 250, respectively).

Introduction

Today's younger generation is growing up surrounded by digital media such as the Internet, video games and mobile telephones. Although information and communication technology (ICT) is an integral part of the daily lives of young people, they are not equally skilled in the use of that ICT (De Haan & Huysmans 2002; Duimel & De Haan 2007; Hargittai 2002). It has been suggested that digital skills play a key role in the distribution of opportunities on the labour market, the distribution of scarce goods and the degree of social participation (Borghans & Ter Weel 2008, Shklovski et al. 2006, DiMaggio et al. 2004, Hargittai 2008). The growing amount of information, the continuous reinvestment of acquired information and the growing influence of ICT on the daily lives of ordinary people mean that the possession of computer skills has today become even more important. Young people derive a great deal of pleasure from the Internet, which they use for their social contacts, entertainment and for school. It is further believed that digital skills can contribute to the reduction of online risks such as the violation of privacy, online grooming and cyber-bullying (Hasebrink et al. 2008).

Schools have traditionally played a key role in imparting skills such as language and arithmetical ability. A great deal has been done in initial education in recent years to integrate digital technology into teaching. In the Netherlands all schools have access to PCs, and 90% of these PCs are connected to the Internet. Additionally, 60% of secondary schools have digital blackboards (Vier in Balans monitor 2008). The use of computers within and outside lessons is also gradually increasing; teachers are being given computer training and the level and quality of ICT support at schools is improving (Ten Brummelhuis 2006). Yet secondary education has virtually no influence on the differences in basic computer skills, which are gained largely by learning through experimentation. Only a small proportion of the differences found between pupils could be attributed to schools (or school classes) (De Haan & Huysmans 2002). The information society appears to be less susceptible to educational influence than was hoped or expected. Pupils enter secondary school with quite a few skills and the skills of younger drafts are likely to be greater still.

As pupils are learning to use a computer by experimenting themselves at home and it is primarily parents who are assumed to contribute to safer Internet use, it makes sense to look at the differences in digital skills between parents and their children. It is often believed that young people have good computer skills which are moreover better than those of their parents. This paper addresses the following question: How do the digital skills of teenagers and their parents differ? In order to answer this question we will make a distinction between instrumental, information and strategic skills.

Data gathering

The Netherlands Institute for Social Research/ SCP participated in three studies conducted by VU University Amsterdam (VU) as part of the Young People and Culture (Jongeren en Cultuur) research project. The 'ICT-school' (ICTS) project was carried out in 2001 (see De Haan & Huysmans 2002); in 2005 (see Duimel & De Haan 2007) and in 2008¹ (see Duimel & De Haan 2009 forthcoming). A number of questions on ICT skills from 2001 were repeated in the 2005 and 2008 studies so that trends over the last seven years could be observed.

In all three studies students from all levels of secondary education were interviewed at on average 50 schools throughout the Netherlands. In 2005 a letter and questionnaire were also sent to one of the parents of each student. The respondent population in all three studies comprised approximately 1,500 teenagers. In 2005 approximately 1,100 parents were questioned (nonresponse meant that the number of parents was lower than the number of teenagers). The data gathering was carried out by researchers from VU University Amsterdam (VU). To compare the 2008 data on the teenagers with those of the parents, we used the 2008 edition of the Amenities and Social Services Utilization Survey (AVO 2008) with 1,700 respondents. We selected the parents of 13-18 year-olds (approximately 250 people). The exact same questions (about digital skills and other topics) were asked in AVO 2008 as in the 2008 teenagers study.

In this paper we also use some quotes from teenagers that come from an open questionnaire filled in by scholars aged 14 and 15 years in three school classes in 2009.

Spread and usage of ICT

The presence of ICT facilities in families with teenagers aged between 13 and 18 years has increased in recent years. At the end of 2008 every family in the Netherlands had at least one computer. Moreover, the number of computers per household continues to increase: 81% of families now have two or more computers at home, compared with just over half in 2001. Half of the families even had three or more computers at home in 2008. The spread of the Internet has been practically complete since 2005, with almost every family having an Internet connection. The number of teenagers with a PC in their own room is still increasing, from 42% in 2001 to 55% in 2005 and 59% in 2008.

We may expect that skills will increase with experience. On average, today's teenagers have longer experience with the use of a PC and Internet. The average age at which the teenagers in the survey first used a computer was 7.3 years in 2008, 7.8 years in 2005 and 8.1 years in 2001. In 2008 84% of teenagers were using the Internet daily at home - also a considerable increase in frequency compared with 2005 and 2001. On average they use the PC for between 2 and 2.5 hours per day. Only a small percentage of young people do not use the Internet at home. Teenagers use the Internet considerably less often at school, generally only a few times per month. Parents also use the Internet fairly frequently at home; half of them do so daily, and fathers do so considerably more than mothers (in 2005).

Assuming that skills derive from usage, differences in use of the PC and internet will lead to differences in skills. Adult users are more likely to use the PC/Internet for practical things such as searching for information, performing transactions and e-mail than teenagers. Young people are more likely to use the IM (instant messaging) program MSN Messenger (MSN for short) (95%) than e-mail (82%), and make little use of transaction functionalities such as online banking and teleshopping. When young people search for information on the Internet, they do so mostly on the subjects of music, film and television. Computer activities such as non-specific surfing, gaming and downloading music are also popular among teenagers; roughly three-quarters of them do this weekly or more often.

Parents use computers differently from their children. Very few parents regularly used a computer in 2005 to download music (9%). They communicate more by e-mail (77%) than MSN (31%) and more than half regularly surf the Internet non-specifically (57%). The most popular subject for which parents search the Internet is current affairs (72%). Mothers use computers and the Internet the least often in the family. There is a correlation between the frequency of Internet use by young people and their parents: the more often young people use the Internet, the more often their parents do so (see also MacGill 2007).

Differences in ICT skills

"In this commercial information society children have overtaken their parents", stated the Dutch Children as Consumers foundation², and: "Regarding computers and the Internet, children are surfing ahead of their parents". "Nonsense", responded the chief editor of 'Parents Online'³ on her weblog; "Kids are not cleverer and do not know more about the Internet. They are naive and cannot oversee the consequences of their Internet behaviour. Most of them cannot appropriately find and

assess information on the internet.” Before addressing this debate, we would like to raise the question of what the skills referred to in this discussion precisely are. A distinction between digital skills can be drawn on the basis of the division made by Steyaert (2000): *instrumental, structural* and *strategic* skills. Instrumental skills are the ability to operate a computer and use the main software programs. A structural skill is the ability to access information. Strategic skills are the ability to apply those skills in society, for example deriving financial benefits after comparing products online. Van Deursen & van Dijk (2008) made a similar distinction between four types of digital skills: *operational, information, strategic* and *formal* skills. According to their definitions operational skills are the skills to operate the Internet browser, search engines and online forms. Operational skills are comparable with Steyaert’s instrumental skills. Information skills, which match up with Steyaert’s structural skills, consist in finding and using information, selecting sufficient information sources and evaluating them. Mastering strategic skills, to use Steyaert’s term, is the capacity to benefit from Internet use; taking the adequate actions to achieve certain goals. Van Deursen en Van Dijk list a fourth kind of skills, which they call ‘formal skills’; these skills represent the ability to navigate the Web whilst retaining a sense of orientation. In order to distinguish different kinds of skills in this paper we will use the terms instrumental, information and strategic skills, which best fit the relevant questions in our questionnaires.

This classification of skills does not imply that one type of skills is more advanced than another, since they refer to different things. The degree of difficulty can vary within the separate kinds of skills. For example, within the information skills, finding out where certain online information came from, who put it there and with what intentions is generally more difficult than checking two or three results in Google instead of just one.

Self-estimation of ICT skills

Before looking at the specific skills that are mastered by teenagers and their parents, we will consider the self-estimation of their own computer skills by the two groups. As regards instrumental skills, most teenagers and parents believe that they have ‘good’ skills (table 1). Fathers and boys more often consider themselves as having ‘very good’ skills when compared with mothers and girls in the family. Mothers have the lowest opinion of their own skills, with roughly half saying that they can use the computer ‘not at all’ or ‘somewhat’. This probably has to do with the fact that they use the computer and Internet less frequently and in a less varied way than fathers.

Hardly any parents say that their teenage child can handle the PC ‘somewhat’ or worse. Parents rate the skills of their children as being better than their own, but also better than the adolescents rate their own skills. Mothers in particular think that their children have ‘very good’ computer skills. Probably because mothers are not so skilled (or think they are not) with the computer, they estimate the level of skills of their children higher than the fathers do. This does not hold for fathers, probably because they are pretty skilled with the computer themselves. Fathers use the computer more often, and therefore have more skills. One girl also mentioned the importance of the amount of usage for skills: *“Teenagers might know a bit more about it since we are on the computer almost day and night. But obviously a lot of grownups are also frequently on the computer, for example for their work, so it varies”* (girl, aged 14.)

Table 1. Self-estimation on how well they can handle the computer of teenagers and their parents in the Netherlands, 2005 (percentages)

	teenagers			parents			parents about child		
	teenagers	boys	girls	parents	fathers	mothers	parents about child	fathers about child	mothers about child
not at all	0	1	0	4	3	6	0	0	0
not really	1	1	1	7	3	9	0	0	0
a little	7	4	9	15	9	19	2	3	1
somewhat	17	15	19	17	13	19	4	6	3
good	58	56	60	47	54	43	58	65	53
very good	17	24	11	10	18	4	36	26	43

Source: SCP (ICTS'05/'06)

Drawing on a recent study (Duimel 2009), we can look again at how teenagers estimate their own skills, but this time with a focus on a specific subject: photo-editing. The majority of teenagers edit pictures occasionally. They enjoy modifying their own pictures which they often upload onto social networking sites. We asked teenagers how good they are at photo-editing. Only 22% think of themselves as good (can change quite a few things on a picture) of whom only 3% say that they are very good and that they can do things that few other people can. 49% said they had mastered this skill only 'a little', i.e. they can only do the easy stuff. 27% describe their skills as poor: they don't know how to modify a photo.

The finding that only a quarter of teenagers describe themselves as good at photo-editing, and the fact that parents estimate the level of computer skills of their children higher than the children themselves do is interesting. It implies that the skills of teenagers are overestimated. The majority of teenagers themselves believe this to be generally the case: 57% think the computer skills of teenagers are overestimated by adults (Duimel & De Haan 2009 forthcoming). Although most teenagers say their computer skills in general are good, it is plausible that this has to do with handling the computer in general. The less people use the computer, like the mothers, the less skilled they are.

Instrumental skills

Instrumental skills are required to operate a computer and the software. In order to use programs the user has to know which buttons to press and click on. Within the instrumental skills, a distinction is made between easy, general skills such as using a search engine, e-mail program or word processor, and more difficult skills such as installing Windows or replacing a hard disk. Almost all teenagers, with no difference between boys and girls, master the easy general skills like adding pictures to a document, moving sentences and compiling an e-mailing list (table 2). When it comes to the more difficult skills, like installing an anti-virus program, a new version of Windows or replacing a hard drive, substantially fewer teenagers know how to do this. Contrary to the more general skills, there is a clear gender-related difference in the more difficult skills, with boys much more often having these skills than girls. Altogether fewer than three out of five teenagers know how to install

the programs mentioned and only a third could replace a hard drive. These percentages support the views of a 14 year-old girl: *“Most teenagers know about IM and the Internet, but as soon as there’s a problem with the computer they panic or want a new one right away. They don’t know anything about the computer itself, only IM and Internet.”*

Table 2. Instrumental skills of teenagers in the Netherlands, 2005 (percentages)

	teenagers	boys	girls
I can add a picture to a document (for example in Word)	97	97	98
I can move sentences around in a document (for example in Word)	94	93	94
I can compile an e-mail list to send an e-mail to several people at the same time	89	90	89
I can install and update an anti-virus program	56	73	39
I can install a new version of Windows	54	68	39
I can install a hard drive in a computer	28	42	13

Source: SCP (ICTS’05/’06)

The notion that teenagers do not pick up these more difficult skills so quickly also supports the finding by Schiano et al. (2002). They believed that, contrary to reports of young people being ‘technical wizards’, it appears to be more the case that they are familiar with applications than that they use them genuinely skilfully. They mainly understand the core functions and do not try to discover the reasons for errors. As mentioned earlier, it is plausible that teenagers are most competent in the things they do the most, and also that MSN is easy to use as well. A 15 year-old girl says the following about herself: *“I can handle the computer pretty well myself but it’s definitely not true that I know everything about it and I think I’m certainly not the only one. I think the computer experiences of teenagers are IM, social networking sites and gaming. I don’t think they’re interested in anything else than that, really.”*

We repeat the percentages of teenagers from table 2 in table 3 in order to compare the skills of teenagers and their parents. Teenagers master all instrumental skills better than their parents. The difference between teenagers and their parents is more obvious with the easy skills than the difficult skills. Dividing the parents into fathers and mothers reveals a big difference between them, especially in the more difficult skills. Fathers are actually better at these skills than the teenagers; even when compared only to boys (see table 2), fathers are still clearly the most skilled.

Table 3. Instrumental skills of the parents of teenagers in the Netherlands, 2005 (percentages)

	teenagers	parents	fathers	mothers
I can add a picture to a document (for example in Word)	97	75	85	76
I can move sentences around in a document (for example in Word)	94	83	89	79
I can compile an e-mail list to send an e-mail to several people at the same time	89	78	85	73
I can install and update an anti-virus program	56	51	83	28
I can install a new version of Windows	54	47	73	27
I can install a hard drive in a computer	28	26	48	9

Source: SCP (ICTS’05/’06)

The notion that teenagers are better at handling the computer is widespread. According to Docampo Rama (2001), this has to do with the fact that young people have a better cognitive memory. Another explanation according to Docampo Rama is that they have grown up with software-based operating panels, and are therefore accustomed to the fact that a button can have several functions. Young people find it easy to cope with multi-layering of systems and have good visual-spatial thinking abilities. They move easily through menu structures and at any moment they know where they are and how to get back in a tree structure (for instance in a mobile phone menu or in Windows Explorer). They quickly recognise the structure and layering of a program or website. In addition they use the computer often, for long periods and from an early age, enabling them to use keyboard and mouse quickly and adroitly. They are fast in operating general software programs and especially the applications and programs they use the most. Parents are less familiar with applications such as MSN which are specifically aimed at young people; almost half the parents state that they are (virtually) unable to use MSN. The skills of parents thus lie to a much greater extent in the use of generally well-known programs rather than being specific MSN skills. The MSN or SMS language used by teenagers also makes it more difficult for parents to follow their children. 38% of parents sometimes worry that they cannot understand the MSN and SMS language used by their children (Duimel & De Haan 2007).

Teenagers are better at instrumental skills, but the difference is not very marked, and is mainly due to the lesser skills of mothers. The notion that teenagers are very good at instrumental skills probably derives from a combination of all the above issues; facility in handling the PC due to being used to mapping structures, plus daily use from an early age and the use of several mainly simple and teen-specific tasks. When it comes to more difficult tasks specific knowledge is required, and fathers know best.

Information skills

Besides the notion of teenagers being very au fait with the computer, another assumption that has often been made is that adolescents cut and paste information from the Internet without checking whether or not that information is correct. Checking the reliability of information online is an example of information skills. These skills can also be seen as part of what is called 'media literacy'. Media literacy is "the ability to access, analyse, evaluate and create messages across a variety of contexts" (Livingstone 2004). In the context of information skills it is about realizing that information found online might not be correct; realizing that every piece of information on the Internet is uploaded by someone with certain intentions; using the right search terms to find results that match the question; selecting the right information sources and evaluating those sources.

In 2008, 55% of teenagers considered it acceptable to cut and paste information from the Internet, for example for use in a school essay. Most teenagers thus do indeed see no problem in handling information in that way. In 2005 45% of teenagers reported that they check the reliability of information found on the Internet. Although this represents an increase from the 37% in 2001, it is still low compared with their command of instrumental skills. Yet this skill is important; estimates suggest that roughly half the information on the Internet is incorrect or inaccurate (UNESCO 2005). Schools therefore sometimes use search engines which search within a specially compiled educational environment in which the reliability of the information has already been verified.

Van Deursen en Van Dijk (2008) found in their research, in which they asked 109 people to perform different tasks on the computer, that the youngest age group performed the poorest of all age groups on information skills. Walraven (2008) also subjected people to a test on the computer. She gave 23 third-grader students computer tasks that involved information skills. The results showed that the students did not often evaluate the search results, information and sources during the search process.

We asked 13-18 year-olds and parents of 13-18 year-olds about their information skills. Almost three out of four teenagers reported they use more than just one word as a search term in a search engine (table 4). The use of punctuation marks in a search engine can be seen as an advanced way of searching for information - excluding words in search results by using the minus sign (-), or searching for an exact phrase by using quotation marks (".."). Only one in five teenagers use punctuation marks in this way. Almost two-thirds say that they verify information found by checking several results. But checking who placed the information on the Web and looking further than just the first page of search results is done by only a minority of adolescents. Overall, there is hardly any difference between boys and girls on this point.

Table 4. Information skills of teenagers and their parents in the Netherlands, 2008 (percentages)

	teenagers	boys	girls
I mostly use more than one word as a search term in a search engine	72	71	74
I often check several search results to verify information	63	62	65
I check more than just the first page of Google results (or another search engine)	32	30	34
When I've found useful information, I check who put the information on the Internet	26	28	24
I often use punctuation marks in a search engine (like "... " or -)	20	20	21

Source: SCP (ICTS'08)

No clear pattern can be observed in the differences in information skills between fathers and mothers. The only significant difference is found in the use of punctuation marks; mothers hardly use them. A marked difference emerges between parents and teenagers when it comes to checking more than just the first page of search results and verifying the source of the information; parents state that they do this much more than teenagers. There is hardly any difference between parents and teenagers in handling a search engine (using more than one word and using punctuation marks) and in checking more than one search result.

Table 5. Information skills of teenagers and their parents in the Netherlands, 2008 (percentages)

	teenagers	parents	fathers	mothers
I mostly use more than one word as a search term in a search engine	72	72	68	75
I often check several search results to verify information	63	69	74	64
I check more than just the first page of Google results (or another search engine)	32	59	58	60
When I've found useful information, I check who put the information on the Internet	26	51	58	45
I often use punctuation marks in a search engine (like "... " or -)	20	16	25	8

Source: SCP (ICTS'08)

The skills that show a clear difference between parents and teenagers are those that relate to an awareness of the reliability of information. The majority of parents are aware of the need to check who placed the information online and to look beyond just the first results. Only a small group of teenagers seem to be concerned about this, although the majority do at least check more than one search result.

Strategic skills

Saving money, saving time, making better choices when buying items: these are all examples of strategic skills. These skills relate to the ability to achieve personal goals and benefit from the use of the Internet. We only have two questions from the questionnaires to illustrate these skills, but the differences they reveal between groups are interesting. Most of the teenagers say they compare items they want to buy online (table 6). When it comes to searching online in order to find an item that is cheaper than it is in a store, boys more often say they do this than girls.

Table 6. Strategic skills of teenagers in the Netherlands, 2008 (percentages)

	teenagers	boys	girls
If I want to buy a new mobile phone I compare different handsets on the internet	64	64	63
I search online if I can find an item cheaper than in a store.	52	58	46

Source: SCP (ICTS'08)

As with instrumental skills, mothers lag behind in the strategic skills mentioned (table 7). Fathers say that they apply their skills to comparing prices of mobile phones more than mothers; as many as six out of seven fathers say they would compare different phones online when planning to buy a new one. There is also a big difference in the strategic skills of parents and teenagers: a lot more parents than teenagers say they compare items and prices online. The differences could have to do with the consumer behaviour of the family member in question. It may be that teenagers are not very often in the position of buying goods online, so they are also not frequently in a position to compare prices. Nevertheless, like the instrumental skills, fathers again clearly apply the strategic skills mentioned the most.

Table 7. Strategic skills of teenagers and their parents in the Netherlands, 2008 (percentages)

	teenagers	parents	fathers	mothers
If I want to buy a new mobile phone I compare different handsets on the internet	64	73	86	63
I search online to see if I can find an item cheaper than in a store.	52	71	79	64

Source: SCP (ICTS'08)

Conclusion

The discussion on ICT and inequality often focuses on the 'digital divide' between those with and without access to ICT. Virtually all families in the Netherlands now have a computer with an Internet connection, and differences now tend to manifest themselves more in the use of ICT and the skills needed for doing so. This is a situation which is likely to be reached in most other EU countries in the near future. Informalisation and individualisation are also taking place within the family. The authority of parents has already come into question due to the emergence of 'negotiation households', and if young people were to be the most skilful users of the Internet in the household this would further erode the authority of the parents. Peers and the media are also gaining influence thanks to the Internet, while carers are losing ground.

Young people are indeed more skilful in using computers than their parents, but this applies chiefly for relatively easy actions in commonly used programs. Of course the so-called whizz-kids exist, but they are more the exception than the rule. As the actions become more difficult, a high proportion of young people are unable to perform them and fathers are actually found to be more skilful than their children. The notion that teenagers are so skilful, and more skilful than their parents, probably stems from a combination of their being used to thinking in terms of mapping structures, being online a lot and from early age, making them very adroit and fast at executing the tasks they perform the most. Apart from basic handling of software, these tasks are mainly a few specific teenage-based applications, like MSN, SMS and games. When it comes to plain knowledge, such as how to replace a hard drive or install a new version of Windows, these skills are deficient. The term 'digital family divide' therefore overstates the differences in skills between young people and their parents. There is certainly no evidence of a division between skilful teenagers and ignorant parents. There is however a big difference in the command of ICT skills between mothers and other family members. Mothers are the least skilled when it comes to the easier skills, and even more so when it comes to the more difficult computer tasks. This gender divide is to a lesser extent also reflected in the younger generation. When it comes to information skills there is still enough to learn for many teenagers. Parents are obviously more aware of the possible unreliability of information. Parents also apply strategic skills more than teenagers do. Even when only comparing mothers with teenagers.

In the Introduction we mentioned the possible relationship between digital skills of parents and their contribution to safe Internet use by their children at home. In the 2005 dataset (where teenagers and one of their parents were connected one-to-one) we found that parents with more instrumental skills were a little more worried about their child online. These worries were about the risk of their child meeting someone online with wrong intentions, and their child seeing sexual and violent images online. They are perhaps more aware of the possible threats to their children online than parents who are less familiar with the Internet. However, better-skilled parents do not set more or fewer rules than parents who are less skilled. They are also no more aware of what their children are doing online than parents who are not so skilled (Duimel 2008). The parents who know most about what their children do online are the parents who agree the most with their teenage children about numerous issues from daily life (the teenagers' behaviour at school and at home, spending habits, future plans, appearance, social activities etc.). These parents also worry less and set fewer rules than parents who are not so in harmony with their child.

These findings point up the importance of a good parent-child relationship. Digital skills are not essential for a parent to know what their child is doing online and to contribute to the safe behaviour of their child when using the Internet. In the same way that parents engage in conversation with their teenage children in real life about everyday events and the experiences of their children, they should also do this with regard to the virtual world. Talking about the Internet and showing commitment contributes to the safety of children online because it reduces high-risk Internet activities and counters compulsive Internet use (Berson et al. 2002; Van den Eijnden & Vermulst 2006). Having little knowledge of and experience with typical applications used by young people on the Internet can cause parents to feel that they are lagging behind their teenage children. Too little knowledge and understanding of what their children are doing on line can lead to alienation between parents and teenagers by undermining the credibility of the parents in the eyes of their children. But parents still have a great deal to teach their teenage children: norms, values and social skills which apply in the real world ultimately also apply in the virtual world.

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¹ In 2008 the age range of the survey was 12-18 year-olds. In 2005 and 2001 the age range was 13-18 year olds.

² The Children as Consumers foundation (Kinderconsument, www.kinderconsument.nl) is a Dutch organization for digital childrights and advising about children and digital media.

³ Parents Online (Ouders Online, www.ouders.nl) is a Dutch organization for parents offering them information, advice and a platform to communicate with each other.