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Teenagers
and their
digital
world

INHOLLAND
Centre for eLearning

**What teachers and
parents should know**

Teenagers and their digital world

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Teenagers and their digital world

What teachers and parents should know

Dutch study

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Preface

The Internet and computers increasingly determine our daily lives. This goes for almost everyone in the Netherlands. Still, it is mostly teenagers who are well informed on how to use all the possibilities of new technologies. They are building a digital world of their own that parents usually know very little about. This booklet intends to inform teachers, parents and other interested parties on what teenagers are actually doing online and how important it is to keep abreast of the new developments that the Internet and computers bring into their world.

On the basis of research into these issues in the Netherlands and abroad we attempt to indicate what the digital world of teenagers looks like and how it differs from that of grown-ups. What do they do, exactly, and why? We also look into teenagers' ICT behaviour and into dangers and abuse of the Internet. Moreover we provide tips for parents and teachers on how to handle certain phenomena.

This book does not pretend to provide an exhaustive overview of the digital world of teenagers. It is focused on some important characteristics and parts of that world. It reports on research of the INHOLLAND Centre for eLearning into various aspects of ICT behaviour among teenagers. The research was undertaken in the spring of 2006, focusing mainly on texting, networking, gaming, dangers and abuse on the Internet and the digital relation between school and the home. Ultimately we are especially concerned with the question of what teenagers really learn in their digital world, and how education can profit. This book also addresses that issue.

1. The digital world

The number of people that use the Internet is still increasing daily. American research[1] has shown that almost 79% of all Americans were online in 2005. The average number of hours per week they remained online had increased to 13.3. Nearly two thirds of all Americans had Internet access at home, and these numbers keep increasing.

It is interesting to read that if Americans were asked to choose between their televisions, their mobile phones and their computers with Internet access, only 27.8% of the users are prepared to give up the Internet. 39.4% can do without their mobile phones, and 32.7% can do without their TVs.

The Netherlands are in the lead in the use of computers and the Internet[2]. In 2005 82% of the Dutch population had a computer, and 72% were connected to the Internet. These figures are immediately out-dated of course, but in comparison: in England 76% had computers last year, 71% had Internet access, in Germany 67% and 60%, respectively and in France 61% and 56%. Researchers name the *pc-privé-project* as a major reason for the high computer use in the Netherlands. This project, which ran from 1997 to August 2004, offered a tax benefit for those who purchased a PC for the home that was also used for work. Moreover the price for broadband Internet in the Netherlands is far below the average price in Europe.

But what do people do when they are online? Again studies provide a good insight. The ten most popular online activities are in descending order: e-mailing, surfing the net, reading news, shopping, finding and reading show business news, finding information on hobbies, online banking, finding and reading medical information, chatting (*instant messaging),* and finally finding travel information and booking trips.

Half of the top ten activities are related to information gathering, the other half is related to some form of communication or interactivity: chatting and mailing, banking and online shopping or making reservations. This shows why the technology behind these activities is called ICT (*Information* and *Communication* Technology).

How does ICT change our lives? Computers affect our lives much more than we appreciate. Many forms of diagnostic and medical procedures would be impossible without computers. The computer is essential in most research in all kinds of fields. The computer has also changed the way we communicate, and it has made that communication more efficient. Elderly people communicate more than they used to, which reduces their isolation. Photographs are shared and ties with family and friends all over the world are re-established. Over 40% of Internet users say that by being online they have more and better contact with family and friends.

These new possibilities to inform and communicate change people's behaviour – often unnoticed – and the daily rhythm of our lives. Our age can be characterised by a change in the governing order of time, also caused by a desire for a 24-hour economy. Our five day working week – introduced in the Netherlands in the 1960s – seems to be on the way out. The idea was that there were five working days, with the weekend off, and especially the Sunday was intended for Church and family. This was a rigid schedule in which matters had their own fixed place. Is it true that this shared schedule is being destroyed by the extensive changes in the circumstances

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[1] *Fifth Study of the Internet* by Digital Future Project by Center for the Digital Future, USC Annenberg School (2005)
[2] *Truly a World Wide Web,* Globe going Digital, Pew Global Attitudes Survey 2005

that change the working hours and the shopping hours[3] of the Dutch, resulting among other things from the possibilities provided by new means of information and communication?

Our present day world can also be characterised by the phenomenon of *continuous partial attention*[4]. This concept refers to the fact that we often divide our attention, seeing as we have all kinds of communication means at our disposal that enable optimum usage. In practice this means that when reading your newspaper you can be interrupted by a signal from your computer that you have new mail. Will you read it or not? Or your mobile phone starts ringing during a conversation with a colleague at work. What do you do? Will you answer it or not?

We got to be in this situation partly because we believe that we should always be available in order not to miss out on any contacts and opportunities. Partly it is caused by our multitasking, which is no longer a problem technologically: we talk on the phone while driving, have dinner in front of the TV and read or study with music on. This is not a problem as long as everyone is happy. But it is a problem when the situation gets out of hand, i.e., when people get stressed out, or dangerous health and security risks arise, or some tasks are not being carried out properly. Such situations require a critical view in which you should be well aware of what is happening. You will need to develop a good strategy which ensures that you remain the master of the situation and that you feel comfortable about it. The quality of life is and should be the most important touchstone, rather than the myriad of possibilities that ICT has to offer.

Another characteristic of our digital world is sometimes called Glocalisation. This term is used to indicate a mix of global possibilities (you can get into contact with everyone all over the world) and local interests (your own network and contacts and what you wish to achieve with them). The term is especially used to arrive at a world which is better balanced socially and economically[5], but in this booklet it is also used to describe the clash between two very different worlds in one and the same Internet: the entire globe with everyone and everything on it and the more secluded personal world of the Internet user. The digital era allows us to ignore time and space, to be in contact with people in far away time zones as if they live next door, to conduct business with people in any country, and to develop information systems that bring us closer every day. But people do not live in a 'global world'; they belong and are at home especially in the culture or cultures that they are part of. This dichotomy creates all sorts of problems which are not easy to resolve.

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[3] W. Knulst, *Alles had zijn tijd. De registratie en beleving van the tijdsorde onderzocht (Dutch University Press 2005)*

[4] *Continuous Partial Attention*: On 7 March 2006 Linda Stone held a Keynote Speech at ETeach in which she introduced this concept. For a summary of this speech, see http://radar.oreilly.com/archives/2005/06/supernova_2005_2.html

[5] See for example http://topics.developmentgateway.org/glocalization

2. The digital world of teenagers

An increasing amount of research confirms that teenagers spend extensive time on activities on the Internet. Weekly 96% of the age group of twelve to fourteen are online[6]. 87% of those between nine and fifteen years of age are online daily[7], nearly half of them for over three hours. What do they do there? They chat, game and exchange information with thousands. They are very open and honest and are much more prepared than adults to share personal information.

They also learn much online, including social skills and strategic insight. They will be able to do well in jobs that require excellent hand-eye coordination, like a surgeon or craftsman working with precision tools.

Teenagers far prefer the online computer to TV, radio and magazines. This is a development that has gone on for a while, and it occurs all over the world: already in 1998 the hours spent watching TV dropped for the first time in fifty years of TV history among American children under the age of fourteen. They chose a more attractive medium than TV: computers and the Internet. As sixteen-year old Samantha said in the Volkskrant Magazine: "My mum doesn't like my tapping on my keyboard, but what else should I to do? Watch TV on the couch with her and my dad? As if that's any fun." It turns out that over one third of the teenagers still watch TV for at least three hours each day.

It is striking that 43 percent do not listen to the radio on a daily basis. Radio has moved over for MP3 players, filled with music through download programmes such as *KaZaA*, *LimeWire* and *eDonkey*. These programmes allow them to download music for free, a boundlessly popular activity among young people. In this manner teenagers clearly show that they find it important to decide for themselves to which music they are listening.

For teenagers the Internet is especially important as a means of communication. The top six of Internet activities is as follows: 81% instant messaging, 63% gaming, 55% downloading music, 53% surfing, 48% finding images, 47% e-mailing.

Their virtual world seems to consist of clearly distinguishable environments: an environment for communication, one for fun, and one for information. Let us have a look at each environment separately in order to gain an insight into what can be learned there – either consciously or subconsciously.

The Internet for communication
The most widely used and most valued means of communication for the adult Internet user is e-mail. For the overwhelming majority of young people it is chatting or *instant messaging* in all kinds of forms. *Chatting* is sending and receiving text messages. These messages are shown directly on the screen, similar to hearing what is said at the other end of the line in a telephone conversation. The recipient can see if the other party wants to add more to what has been received and can also see if the other party is busy entering a message. It is convenient and simple to learn and do.

The English word *chatting* is a precise description of what this is about: chitchat and small-talk. *Chat-environments* are nothing less or more than digital hang-outs for young people. They meet there with each other to talk about everything and more. This may seem insignificant, but it is quite the opposite! Many teenagers meet for

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[6] Haan, J. de, 't Hof, C van (2006), *Jaarboek ICT and samenleving, de digitale generatie,* Boom Amsterdam.
[7] Numbers from an online study by Kaboem, the marketing platform for Tweens, undertaken in 2005.

social interaction and defining their own identity, which nowadays happens mostly online and not just on street corners or in shopping malls and parks.

Many children prefer a *chat* system in which they can choose who they *chat* with. The most popular environment in the Netherlands at present is MSN (Microsoft Network)[8]. The MSN software is downloaded from the website. MSN is safer than a chat room, because the users select who to communicate with. They do not depend on the random visitors in a chat room, but only talk to the people on their personal contact list. Children who are somewhat shy in the real world can easily join in because there is no direct eye-contact. Furthermore, many teenagers do not use their own name in the digital world.

Young people up to the age of fourteen do not like e-mail very much, but prefer flashy, direct, synchronous contacts with friends and acquaintances on one or several lists. They can see at a glance who is online, and who is not. Chatting with several people simultaneously is not a problem, on the contrary, it has become a regular feature.

Currently the instant messaging software is not limited to chatting. Most also offer the possibility of exchanging files. If a picture is too big to send through the e-mail, it may not pose a problem for instant messaging. The most recent version of MSN offers even more features.

They spend a lot of time on creating and maintaining their own profile, on uploading images and photographs, sending messages to friends and on inspecting and responding to each other's profiles. What do they look like, is the description sufficiently *cool* and what are the reactions to their contributions and opinions? These matters take many young people back to these online communities and keep them there for many hours each day.

Next to MSN Messenger, *Profile sites*, and especially *CU2*, *Sugababes*, *Happygirls* and *Superdudes,* are also very popular. Teenagers create their own pages on these sites presenting their preferences and hobbies, with attractive backgrounds, photographs, animations and even videos. These are shared with friends and acquaintances. Profile pages are usually publicly accessible, so anyone can visit them. Therefore it is advisable not to include information that reveals their true identity, such as contact information or their real names. Some profile sites also provide networking features. A profile can link to the profiles of friends. The pages of friends of friends can also be accessed, and they can be contacted. There are also sites that are mainly intended for networking, such as *Hyves*, and *Hi5.*

More and more older children also start their own *weblog*, or *blog* in short. This is a profile site in the shape of a diary. *Bloggers* can create a personal blog that is mainly focused on describing their own lives. Experiences and thoughts are written down and pictures and comments are included. The intention is that others respond to this *blog* and the *blogger* responds to the *blogs* of others. There also exist more thematic blogs that focus on a specific issue. *Bloggers* should be aware that it will require the necessary efforts to continuously modify the weblog and keep it up to date. If a *blog* attracts returning visitors, they will expect to find new entries. The blogger has to write new entries at fixed intervals, which requires discipline and stamina. Many teenagers attempt to start a blog or their own website, but they often quit after a couple of weeks because it takes effort and the novelty has worn off.

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[8] Renamed *Windows Live Messenger* as from the spring of 2006

Every second someone around the world starts a new we*blog*[9]. One in five teenagers in the USA has their own *blog* and the number of *blogs* in the Netherlands is also increasing rapidly: it has risen from 250,000 to 600,000. Every two minutes a new *blog* is created in the Netherlands. The behaviour of girls is most significant. They comprise only 39% of the online teen community, but 50% of them regularly read a *blog*. 60% of them actually keep a *blog* themselves! There are more girls that keep a *blog* than girls that read a *blog*[10].

An extremely popular community – the one you need to be a member of to really belong – is *MySpace.com, a place for friends. MySpace* clearly fits the teenager's idea of a virtual world, in which having many 'friends' is regarded as a status symbol. This community is the place for many music groups to break through and become more widely known.

Facebooks are very popular among students, especially in the United States and Great Britain. These are online databanks of people, totalling seven and a half million users. They are protected environments, because they can only be accessed by someone who has a university e-mail address. The students present their pictures and personal data in *Facebook*, and share gossip and news. As it provides a perfect source of personal information it is a powerful tool to obtain prominence in the student community.

The Internet for fun
Although being online with friends is lots of fun in itself, there are obviously many other entertaining things that one can do on the Internet. Children are very quick to tell each other which websites are cool. There are sites for every taste: sites to play games, to build things, to do quests, read stories, listen to music, find pretty pictures or taking part in a quiz. These websites often make them feel trendy and popular[11]. It is fun to share experiences and to feel that one belongs. The Internet is eminently suited for bringing people with shared interests together. One can always find a suitable group, or *webring*. Getting involved is easy, useful, free and fun.

Kids with hobbies and collections, for instance of Pokémon cards, Yu-gi-ho or other toys, often come into contact with other collectors through online forums and auction sites such as www.marktplaats.nl.

Sharing interests almost always has a positive effect, except of course if the subjects encourage self-mutilation, anorexia, extremist views or violence. Sharing anorexia experiences with co-sufferers can help patients, for instance, but unfortunately it can also persuade others to copy unhealthy behaviour. Vigilance is warranted here.

A special form of *Internet for fun* is *gaming*. This is extremely popular with young people all over the world. There are games for all age groups[12], ranging from games for training gross motor skills and simple sorting games to so-called *Online Multiplayer Role Playing Games*. Children can take part from the age of eight, and they will not be the only ones. A very well-known game is *World of Warcraft*, boasting over three million players. In this game they create a character which will develop

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[9] See www.technorati.com
[10] Source: Computeridee.nl, 8 April 2006
[11] See for instance Kid's Planet: www.kidsplanet.nl. Here you'll find sections such as: News & Sports, TV & Film, Music, For Better or for Worse, Animals, but also a Love gauge, a quiz and games.
[12] For further information: W. Veen and F. Jacobs, *Leren van jongeren. Een literatuuronderzoek naar nieuwe geletterdheid.* Surf Onderwijsreeks November 2005

over the course of the game. *World of Warcraft* requires the players to complete a number of tasks (*quests*). As the game progresses it becomes clear that this requires teamwork, preferably involving players with different skills. This requires collaboration.

Much can be learnt from *gaming*, including playing a part as a test case for developing one's own identity, and developing social skills by working together in a team. *Games* also require strategic insight, quick decision making under time pressure and being able to analyse systems. Games also require multi-tasking. One has to be able to concentrate! Clearly these are skills that are in demand in society.

The Internet as a source of information
Obviously, the Internet is *the* source of information for young people as well. It provides knowledge on almost any subject, including subjects that they want to know more about but are not comfortable discussing with others, such as divorce, bullying, falling in love, French kissing, arguments (with parents or friends), sex, drugs, birth control, STDs and depression.

All this information being so readily available is a marvellous advantage of the Internet, but it is important that the information on the web is correct and un-biased. Young people as well as most adults too easily take something for true for no other reason than its presence on the Internet. Almost 80% of the teenagers is convinced that what is on the Internet is true. But the same care should be taken regarding information on the Internet as regarding news in newspapers and on radio and TV: check the source and what the writers might want to achieve by spreading this news!

The same applies to the commercial interests that penetrate ever deeper into the digital societies, including those of teenagers. There is an obvious danger in all kinds of offers that are sent into the kids' rooms through the Internet. Adults can also help here by making clear that every commercial temptation comes at a cost. Just as in the 'real' world, young people must learn to resist certain temptations.

The social role of the Internet as a search engine is becoming increasingly important. Internet users take the views and opinions of others into account in making choices. One can instantly find qualitative information on products or anything else on the Internet. But the factual information from companies' websites is becoming less important than the opinions of others, of users. An example for user information on home photographs and comments is www.flickr.com.

It is interesting to observe that companies are very much aware of the power of present-day teenagers in their virtual world[13]. Millions of teenagers express their views on consumer products on the Internet. For instance, more than five million visit the iPod Lounge[14] each day to discuss all that can be done with an iPod, what has to change and what improvements they have made themselves. No company can ignore this. It is an absolute necessity for present-day marketeers to get into contact with *early adopters* through the Internet. Their opinions and their influence on others can make or break a product. Companies will have to accept that consumers will decide to buy a product on the basis of the opinions of their friends on the Internet and of users of the product through a site such as www.askanowner.nl rather than on

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[13] Hermes, J. and Janssen, S. (2006), *De nieuwe contentmakers* in Jaarboek ICT en samenleving 2006, pp. 159-175
See also Molenaar, C (2005), *Wisseling van de macht* (Pierson Education Benelux B.V.)
[14] www.ilounge.com, an independent source of information on Apple's iPod and its accessories and software.

the basis of the information provided by the company itself. It looks as if this young generation will have completely taken over control from the marketeers in ten to fifteen years. Using search engines they will find the products they want to buy independently within their communities and online networks. They will then decide where to buy it and how much they are willing to pay.

A special kind of sharing information on the Internet is a *wiki*. A *wiki* is a website to which visitors can easily add information, images and links to a single communal page. The site is edited without the need for permission or any access codes. A *wiki* is usually monitored by a group of people that check whether the new contributions are genuine and are not intended to provoke or shock. All contributions together constitute an encyclopaedia such as *www.wikipedia.org* to which anyone can add information.

By the way, research has shown that Internet users instantly determine whether or not a website is worth reading[15]. This is done within a second, for some people even within a 20th of a second.

The Internet as an (unintended) learning environment
By actively engaging in the digital world young people unintentionally develop skills and gain knowledge on all kinds of subjects that are a part of life in our modern society. By learning we mean gaining knowledge and skills, storing them in one's memory and being able to apply them in practice. This can be considered as a by-product of working with computers and exploring the Internet with a completely different aim such as communicating, having fun or finding information.

What do teenagers learn? For a start they acquire digital skills. These range from working with computers (including installing software by themselves, finding files, creating directories, copying files, working with images, video and music) to e-mailing, creating websites, drawing and word processing. This provides a good foundation for learning to work with software such as PowerPoint, Access and Excel in class. It has also become clear that surgeons become more skilled in their work by exercising their eye-hand coordination, for instance by gaming.

But teenagers learn much more online, especially social skills, strategic insight, creativity, quick information processing and taking responsibility. The days when sitting behind a computer was regarded as an alienating and soloist activity appear to be truly behind us. Especially for teenagers that specifically use their computer and the Internet to start and maintain contacts and who learn to discover and shape their own personality in relation to others. Just like in the outside world one has to learn to make friends, to experience the importance of good communication with others and to be a trustworthy partner who keeps agreements and is willing to share with others.

Social skills, strategic insight and reaching agreements are especially important in the virtual continent of *gaming*. Many games require players to form teams (*Multiplayer Games*). They need to decide together who takes which part, and who will be in charge. They have to learn to take responsibility, and they are out of the whole deal if they fail to do so.

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[15] Lindgaard, G., *Behaviour and Information Technology,* March/April 2006.

3. Case study into the virtual world: instant messaging

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The INHOLLAND Centre for eLearning undertakes research into areas of the virtual world which deserve special interest. In the spring of 2006 those studies focused on instant messaging, gaming, networking, dangers and abuse of the Internet and the Internet in relation to school and home. The most important findings are presented here. Those who wish to review the entire study are welcome to do so at www.inholland.nl/elearning.

MSN is the most popular form of Instant Messaging (IM). It is direct communication on the computer screen, 'live' contact, similar to a telephone. Instant messaging uses a *buddy list,* or list of contacts, that shows who is online at that moment. The users compile and maintain the list themselves and they can add contacts they wish to chat to and they can choose to block people. It is therefore a relatively safe form of chatting.

Joost Bon[16] remarks that there are 5.6 million MSN Messenger *accounts*. An account is a part of a server that is reserved for a single user. Some 50 to 60 million conversations are conducted each day over MSN in the Netherlands alone. MSN is available world-wide in 26 languages and with almost 540 million users it is more popular than for example Google (490 million) and Yahoo (480 million) [17]. MSN has been a stable partner throughout its ten-year existence, starting in the United States in 1995 and in the Netherlands in 1999.

What does MSN offer?
MSN Messenger allows you to participate in world-wide online conversations through text messages, and it also incorporates audio, video and mobile messages. Other well-known services are MSN Hotmail with some 5.7 million users in the Netherlands. MSN space is a free service intended for sharing thoughts, photographs and lists of music. Users can start a we*blog* in MSN space, share photographs, publish items in their space from their mobile phone, and they can give their space its own appearance (colour, lay-out and background).

MSN Messenger is continuously changing. Microsoft is currently working on the successor of version 7.5: *Live Messenger*. Joost Bon indicates that he would like the possibility of chatting not only with your friends, but also the friends of your friends, like in *Hyves*, for instance. Microsoft is developing so-called *sharing folders* that allow users to share folders and files with others. The video and audio capabilities will also be improved. Users may be able to watch videos, as is already the case for the 3FM radio station whose broadcasts can be viewed live through MSN.

The study
MSN is a multi-facetted world with a wide range of (young) people that participate for various reasons. One important factor is that MSN is a consumer-friendly, fast and cheap way of keeping in touch with others. It offers proximity with a certain distance, because the 'silences' that can make some phone conversations so awkward do not exist and 'flirting' has become 'safer' for those in love.

Most teenagers use MSN to keep in touch online within their own circle of friends, i.e., those they have just seen face-to-face at school. On the Internet they can further develop their own image of themselves and their own identity, or rather, their identity can be 'gathered up'. Some call them the 'cut and paste' generation[18]. *Sharing* is a

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[16] Joost Bon has been the manager of the business line Communication Services of MSN Nederland since 2004. He is responsible in this job for the P&L of MSN Hotmail, Messenger and Spaces. Before 2004 he worked at KPN in various positions.
[17] Source: ComScore May 2006
[18] Erwin van der Zande, *Hoe bereikt u de MSN-generatie?* (www.emerce.nl, 25.12.2004)
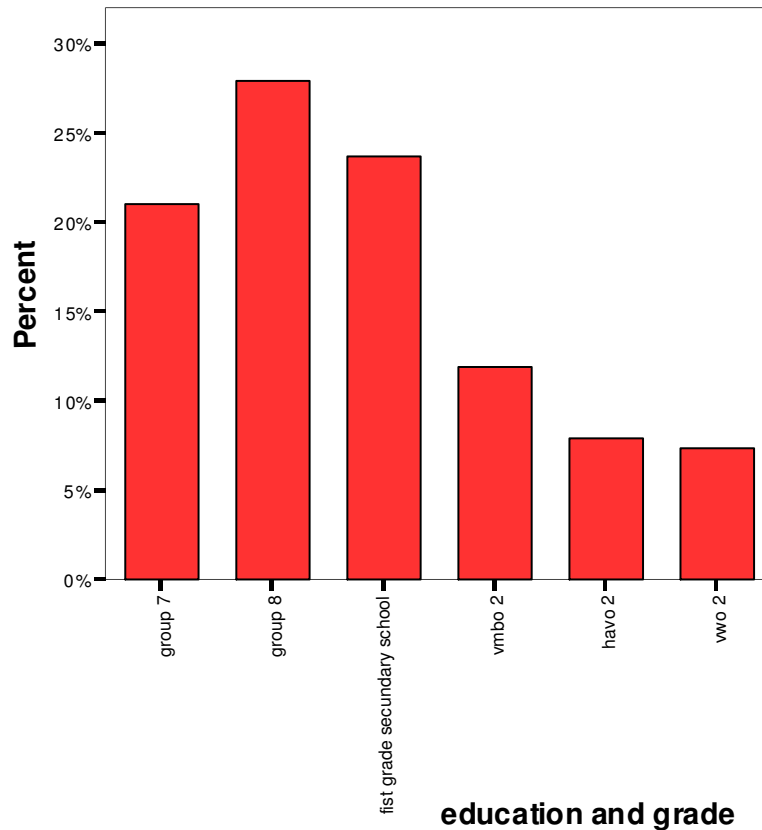
central theme. Young people are naturally inclined to share information, knowledge and other things that adults usually try to keep to themselves. For them it is very important to know that they are part of a *community* that they are co-building. Friendships can become very close in this way[19], especially of course if the conversations are not too superficial and they also share their worries and discuss love and sexuality. This MSN behaviour is in direct contrast to a significant group of young people that sometimes use MSN anonymously, for whatever reason, and who take on a different identity for this purpose that usually appears more perfect.

To obtain a better understanding of the how and why of instant messaging by young people, we asked over 400 pupils, almost all of 10, 11, 12, 13 and 14 years of age, to fill out a questionnaire. This involved pupils of two primary schools in Hellevoetsluis (including *Basisschool Oranje Nassau*), a secondary school in Brielle, two protestant primary schools in Rijnsburg and Katwijk (*Mr.J.J.L.v.d.Brugghenschool*) and two protestant secondary schools in Rijnsburg (*Visser ´t Hooft Lyceum* and the *Wellantcollege*). The latter two schools provide preparatory vocational education (VMBO), advanced-level secondary education (HAVO) and pre-university education (VWO).

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[19] UVA Project: Internet, family life, and social well-being in childhood and adolescence. (Data provided in October 2004). Other findings of the study are that sixteen percent of teenagers feel that more attention is paid to them on the Internet than in real-world encounters. About 25 percent also think that it is possible to discuss more diverse subjects on the Internet and that the Internet is more fun than the real world.

Resondents by grade

Primary and secondary education are both well represented

90% of these pupils use MSN (54.9% of these also manage an MSN space). The small group that does not use MSN say this is because MSN is not installed on their computer, that they do not feel like using MSN or that it is not allowed by their parents. Almost a quarter of MSN users started when they were ten years old, others mention having started at ages ranging from six to fourteen years. Their opinion of MSN is very positive: almost three quarters assign it a score of 8 or more on an ascending scale of 1 to 10. 30.7% even assign it a 10!

Why do you use MSN?
A majority (65.8%) use MSN to keep in touch with friends. A selection of comments:

- *It just feels sociable to chat in MSN with each other (Girl, 11 years, group 7)*
- *I like it better than talking (Girl, 10 years, group 7)*
- *I've become addicted to it (Girl, 12 years, group 8)*
- *You can talk to each other day and night. You don't have to go home when it gets dark because you already are home (Boy, 12 years, group 8)*
- *I just like to talk with someone that you cannot see using the computer (Boy, 11 years, group 8)*
- *For feeling sociable and keeping in touch (Girl, 12 years, group 8)*

- *To gossip and have fun (Girl, 11 years, group 8)*
- *If I get bored, I'll get on MSN… (Girl, 10 years, group 7)*
- *MSN is really cool! (Girl, 11 years, group 7)*
- *Just because everyone I know is on MSN. (Boy, 13 years, first grade secondary school)*
- *If you are grounded, you can talk on MSN (Girl, 14 years, vmbo 2)*
- *It is cheaper and faster (Girl, 13 years, vmbo 2)*
- *Because you can contact someone quickly. You don't have to go to them. (Girl, 14 years, vmbo2)*
- *I feel more confident on MSN and it is fast (Girl, 14 years, vmbo 2)*
- *I was living abroad and could keep in touch with my friends and family that way (Girl, 14 years, vmbo 2)*
- *It is just enjoyable, especially when you're in love. (Girl, 14 years, havo 2)*
- *Texting costs money and MSN doesn't (Boy, 13 years, vmbo 2)*
- *I got know a very good friend on MSN. I do not know her in real life (Girl, 13 years, vmbo 2)*
- *Because I talk to people that can help me with hobbies and stuff (Boy, 13 years, first grade secondary school)*
- *It is fun to do and I feel more confident to say things on MSN (Girl, 12 years, first grade secondary school)*
- *You can fit some enjoyable and social activities into your spare time without having to go to meet each other (Girl, 13 years, vmbo 2)*

How often do you use MSN?

The frequency of MSN use is very high. A majority of the pupils are on MSN 6 to 7 times a week. Only 4% use MSN once a week. 16.5% indicate that they have MSN working for more than two hours a day. The majority are on MSN for a quarter of an hour to two hours a day.

CBS (Statistics Netherlands) has found that young people spend an average of twelve hours each day on personal care (sleeping, personal hygiene and eating) and have about six hours spare time. Two hours are spent watching TV, watching video or listening to music. One and a half hours go towards contacts with family and friends, and another one and a half hours go towards hobbies, going out, sports and 'doing nothing'. The time spent on contacts is mostly related to Internet and chatting. This is done at the expense of watching TV and video, but also of hobbies and social life. However, it does not impact sleeping, doing homework or reading the newspaper.

Do your parents set any conditions on using MSN?

A study by *Qrius* on behalf of *Wanadoo*, published in June 2005, shows that parents are hardly concerned about their children's Internet use. 65% have no concerns at all. On the other hand, about half of the parents forbid or discourage their children to visit certain sites. This mostly relates to pornographic or violent sites. However, the parents do not or hardly check what their children do. The children think that their parents have little knowledge of the Internet. They also state that their parents hardly take any measures to improve the safety of Internet use by children.

On the question whether their parents set any conditions on using MSN, 68.8% of the pupils in this study indicate that there are no conditions. For the others the conditions refer to limitations on the time spent on MSN (10.4%) and "only after you have finished your homework" (12.2%).

- *Boy, 11 years, group 7: "Yes, but my aunt is also on MSN".*

- o *Girl, 12 years, group 8: "There are some conditions, but we don't keep to them...."*

Only 2.8% of all parents do not want their children to use MSN, 72.3% do not mind and 23.5% have no opinion. 40.3% of the parents show no interest. Almost half of the parents do show an interest, and over 40% of these have asked to be shown what MSN is like. Only a quarter of the parents are listed in their children's' *buddy lists*.

Who do you MSN with?
The *buddy lists* or contact lists on average contain many names: a significant 40.2% state that their lists contain over 110 people. 1.9% have less than ten, and 49.5% have between 10 and 90. 63.1% include relatives, 50.4% include friends they know through hobby and sports, 75.8% include schoolmates and 95% include friends.

28% also include a teacher. 16.8% of all pupils would like their teacher to be involved when discussing home work (76.1% indicate that they also use MSN for homework). 34.2% would rather go to school for that purpose and 49% state "I don't care'.

On the question whether they talk to some people only on MSN and never face to face, they responded as follows:

- o *I only talk to my contacts on MSN (1.7%)*
- o *On MSN and in real life (54.4%)*
- o *In real life and only some just on MSN (43.9%)*

One twelve year old girl states that she chats with 'people who are being nice' (Group 7).

Friendships?
54.5% of the pupils state that good friendships have come about from MSN. 48.2 of them speak of good friends, and 39.5% speak of good and regular contacts.
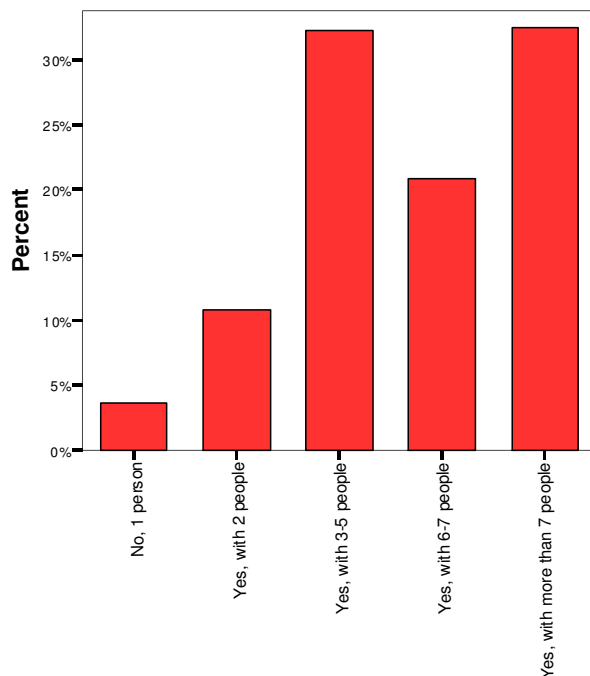
What about?
We also asked the pupils: "What do you **usually** talk about on MSN?" (multiple answers possible). The following picture emerged:

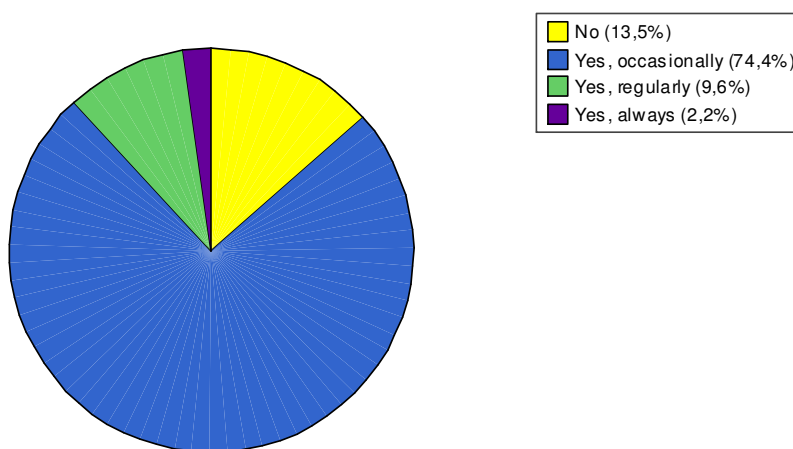| Subject	Percentage
School	61.8
Homework	39.7
Friends	69.3
Sports	47.9
Current Affairs	88.4
Hobbies	44.3
Pets	18.8
Relatives	24.4
Love	63.7

Do you talk with several people at the same time in different windows?

Hardly anyone chats with only a single person at a time, as shown by the graph below:

Do you talk with several people at the same time in the same window?

Multi- person conversations in a single window are also prevalent:

- No (13,5%)
- Yes, occasionally (74,4%)
- Yes, regularly (9,6%)
- Yes, always (2,2%)

Do you use a webcam?
35.6% state that they do not own a webcam. 50.6% of those that do use it on MSN.

Bad sides of MSN?
Just like any other meeting place for people MSN is not all roses. 54.5% state that they sometimes have an argument. 17.4% state that they are occasionally being bullied and 24.1% confess that they sometimes bully others. 57.1% block people who aren't nice and 13.6% block bullies.

They also regularly receive things that are not appreciated: a link to a stupid website (17.7%), strange or dirty pictures (6.4%) and advertising (32.6%).

- o *"You don't have to accept. If you don't accept, you won't receive anything."* *(Girl, 14 years, havo 2)*

Competition for MSN?
79.6% use MSN more than texting, 16% text and use MSN in equal proportion.

Even though e-mail may appear old-fashioned and slow to most pupils, only a small percentage state that they never use it (6.3%), 13.2% hardly ever, 51.2% occasionally and 29.2% often.

Only 16.3% of the pupils indicate that they sometimes use instant messaging software other than MSN, usually *ICQ*. For them, as for all young people, MSN is the most popular website, ahead of *Google*. It is also the most popular instant messaging service, ahead of *ICQ* (10%), *Yahoo Messenger* (3%), *Trillian* and *AOL* (1% each).

4. Case study into the virtual world: Learning through games
Why teenagers engage in games and what they and designers think they can learn from them

Ingmar Sauer
Jos Fransen

Gaming is becoming more and more important as a pastime for teenagers. The games industry is booming business. Entertainment games now represent more money than the music industry; a wholly new situation. The immense popularity of games speaks to the imagination of adults, and there have been numerous studies into the appeal of games. Is it the challenge, the competition, entering a world different from reality, or is meeting other people the most important aspect? Games motivate teenagers to spend hours in deep concentration, and this factor alone explains the interest of parents and teachers. Schools are hardly able to motivate teenagers. If we succeed in finding the secret of the most 'addictive' games, then we might be able to use that as a key in shaping education for teenagers. This is the underlying idea that has resulted in the exploratory study that is presented below.

Opinions range widely on the educational value of games. Proponents argue that teenagers today have a different way of processing information and that they learn in a different way. Wim Veen[20] calls present day teenagers 'homo zappiens', because the way they view the world and handle information is different from adults. Teenagers look for information in all directions and use everything that they encounter to build up an understanding of the world, not in the least the information obtained from others. These teenagers are part of multiple networks in the digital world, as they often meet those others on the Internet through websites, weblogs, games or forums. They are therefore also called the network generation. Supporters of using games in education claim that education must adapt to these changing teenagers and develop a new approach, one that is focused more on the creativity of teenagers, allowing them the space to shape their own learning process.

Obviously there are also opponents and doubters. Opponents point out the fact that entertainment games are focused too much on violence and competition and that there are no meaningful educational benefits. The doubters attempt to curb enthusiasm by reminding us that the advent of computers in education was greeted with similar enthusiasm, but that this has had less results than was expected[21]. They also point out that learning in games takes place in all kinds of ways, but that using games to really acquire knowledge is not obvious. According to them the actual value of games lies more in the possibilities that games offer to experiment and to construct a model of reality in order to increase understanding. Teenagers can also learn about collaboration and they may become more skilled socially by interacting with others in a game. But for the time being those educational benefits should not be overestimated. At the moment educational games are being used in education that were specifically developed for that purpose, but many of those games turn out not have the same impact on teenagers as the games that they play in their spare time. This situation corresponds to the view of a well-known researcher and adviser in the field of education, who states that games should never be put into the hands of educational experts, because they will immediately take out the most important ingredient, i.e., fun[22].

However there are reasons to assume that gaming is truly a way of learning and that especially this aspect should be studied to find out how it can be put to use in

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[20] Veen, W. & Jacobs, F. [2005]. *Leren van jongeren; Een literatuuronderzoek naar nieuwe geletterdheid.* Utrecht: Stichting SURF.
[21] Quote from Willem-Jan Renger at the conference 'Klikt 't: educatieve oplossingen voor de netgeneratie' in April 2006; from: Bakker, N. [2006]. *Poging om gaming-hype te temperen en onderwijsrevolutie in gang te zetten.* EduSite; www.edusite.nl
[22] Prensky, M. [2006]. *Don't Bother me Mom – I'm Learning; How Computer and Video Games Are Preparing Your Kids For 21st Century Success – and How You Can Help.* St, Paul: Paragon House.

education. James Paul Gee[23] has written many memorable publications on this subject. In short he stated that it is not really important what teenagers learn when playing a game, but what they are doing while playing a game. Learning and developing an identity come together because teenagers identify with a character and shape that character while they play the game. This teaches them about the world, but also about themselves. They experiment with the various aspects that correlate with a specific identity and they can also experiment with the choices they cannot or dare not make in real life. That could be the added value of games, and it could also partially explain the attraction they have for teenagers.

There are also clear applications of games in learning processes. Pilots first learn to fly using a flight simulator, which is similar to a game. There are games where the player takes on a role. The choices that are made in such a game provide insight into the way things can work out in real life. Examples are for instance management games. There also exist games that allow the user to replicate a process and help to learn how complex processes develop in reality. There are simulations in which the player acts as a project manager who needs to make the right choices under all kinds of circumstances, as well as games that teach how the economy works. In this way games can provide an environment in which the players can learn how to handle complex situations, without serious consequences if a wrong decision is made. It is better to try something out in a simulation first, especially if it impacts on other people as well.

The popularity of games among teenagers fits in with the trend that teenagers are not only consumers, but are also acting more and more as producers of information. They look for information in a different way than adults and select what they can use. They also share large amounts of information with others through the Internet and through that they become co-producers of information. This has given rise to the term 'prosumers' instead of 'consumers'[24]. This is shown among other things by the strong growth of weblogs and personal websites that are created by teenagers, but it is also visible in all kinds of 'communities' on the Internet in which they participate and which correspond with their interests. This situation partially explains why TV has lost much of its attraction. TV requires a passive intake of information and does not allow any interaction. It also contributes to explaining the attraction of games, because games allow teenagers to influence the events and thus to take the part of producer, or rather 'prosumer'. This even manifests itself in the fact that experienced players sometimes develop new levels for a game, or even entirely new versions of games, known as 'mods' (modifications). In some cases a mod even turned out to be more popular than the original game because it better addressed the wishes and needs of the players. All this means that it is at least worthwhile to undertake an intensive study of the usability of games in learning processes. Not only can knowledge be acquired through a game and skills such as quickly processing large amounts of information be trained, but as simulation environments games also provide all kinds of possibilities for learners to design and help build new applications. That is a great creative challenge.

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[23] Gee, J. [2003]. *What Video Games Have To Teach Us About Learning And Literacy*. New York: Palgrave McMillan.
[24] Toffler, A. [1980]; In: Hermes, J. & Janssen, S. [2006] *De nieuwe contentmakers*. SCP: Jaarboek voor ICT en samenleving 2006.

INHOLLAND Centre for eLearning study into 'gaming' among teenagers
A significant number of teenagers was interviewed about their gaming behaviour, preferences, and their view on the educational value of games in order to find out what motivates teenagers to play games and whether they themselves think that they learn from it. Young people ranging from 14 to 34 years of age were interviewed as part of the study, thus allowing a comparison to the results of other studies among young people. In this way we wanted to broaden our knowledge of the motivation of young people in gaming, as well as which games they prefer and whether that information can be linked to a view on what young people can learn from gaming. In addition we asked three games designers about their view on the educational value of games in general, and the game that they designed in particular. By the word 'game' we mean the games that can be played on the computer or on other platforms, such as the PlayStation, the X-box or the Nintendo, and nowadays this also includes the mobile phone. The appearance of these games does not differ much across these platforms, but the way they are controlled does differ. Each platform has its own tools. The computer has a mouse and a keyboard, and a games console has a controller, which may or may not be hand held. The world of games has a vocabulary that is incomprehensible to the uninitiated. Therefore the most important genres are listed at the end of this chapter.

Who participated in the study?
189 young people from almost all types of education have participated. This includes VMBO (preparatory vocational education), MBO (vocational education), HAVO (advanced secondary education), VWO (pre-university education), gymnasium (grammar school), HBO (advanced vocational education) and WO (university). Through the study we hoped to gain an insight into possible differences between groups of young people in gaming behaviour and preferences. At the same time differences between age groups become apparent and we can observe whether there are correlations between age and education with respect to games. The young people we approached were pupils at a number of schools in the city of Rotterdam and in the municipality of Barendrecht. That way we hoped to be able to determine whether or not it makes any difference with respect to gaming if the respondents live in a city. These schools were approached:

• *Christelijke scholengemeenschap Calvijn* (protestant comprehensive school) in Barendrecht, specifically the location Buitenoord [VMBO] and the location Groene Hart [HAVO, VWO and gymnasium].
• *Albeda College* in Rotterdam, pupils in VMBO and MBO education, but also including a group of students in adult education.
• *INHOLLAND University of Applied Sciences* Rotterdam, HBO students, covering several disciplines.
• *Erasmus University* Rotterdam, university students, covering several disciplines at the location Burgemeester Oudlaan.

Three games developers were interviewed on their views of the educational value of games and their application in an educational environment.

How was the study conducted?
The young people were asked to fill in a questionnaire with questions on their gaming behaviour, their preference for a game and their views of the educational value of games. To determine what questions to ask regarding 'learning from games' we turned to the 'seven habits of highly effective people' as described by Stephen Covey

and as used by Mark Prensky[25] to indicate what people learn from gaming. For the reader to properly understand the study we need to mention and briefly introduce these seven habits. Stephen Covey distinguishes between individual and group habits:

Individual habits
1. **Be proactive**, meaning: take the initiative in making decisions, testing strategies and in finding an collecting information
2. **Begin with end in mind**, meaning: keep focused on the goal that you want to achieve right from the start and adapt the strategy to achieve that goal
3. **Put first things first**, meaning: prioritise tasks based on what needs to be done first and what can be done later and adapt the strategy to those priorities.

Group habits
4. **Think win-win**, meaning: creating a team in which people complement each other in their skills will lead to more success, therefore forge relationships that result in mutual benefit
5. **Seek first to understand, then to be understood**, meaning: find out what are the motivation and needs of the other players in order to be better able to decide whom to join
6. **Synergise**, meaning: experiment and be creative in finding new combinations and improving collaboration because this will lead to more success
7. **Sharpen the saw**, meaning: keep practicing and be critical to improve yourself and to develop new skills

By means of direct questions we also wanted to find out if these habits are recognised by the teenagers and if they are also important in gaming. These habits were also discussed in the interviews with the three games developers. We had a special interest in group habits and attitudes in gaming. It is therefore logical that we focus our attention on the games in which young people encounter and play together with others. This kind of game is usually played on the Internet, known as MMOG (Massive Multiplayer Online Game). We will use this abbreviation from now on.

Who are the respondents and how much time do they spend gaming?
Firstly we will describe the results of questionnaires that were presented to the young people from the various schools. The questionnaires were presented to the respondents in the canteen or in classrooms where possible. About an equal number of boys and girls took part in the study. An overview of the age groups in the standard manner presents the following division:

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[25] Prensky, M. [2001]. *Digital Game-Based Learning*. New York: McGraw-Hill.
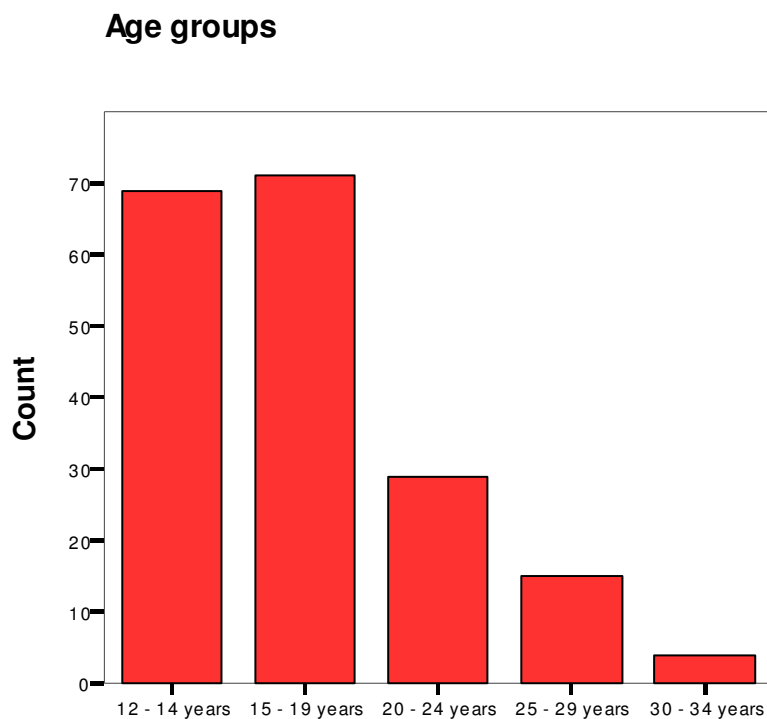
Age groups

Figure 1. Number of respondents in each age group

The division into the number of young people for each type of education presents the following overview:
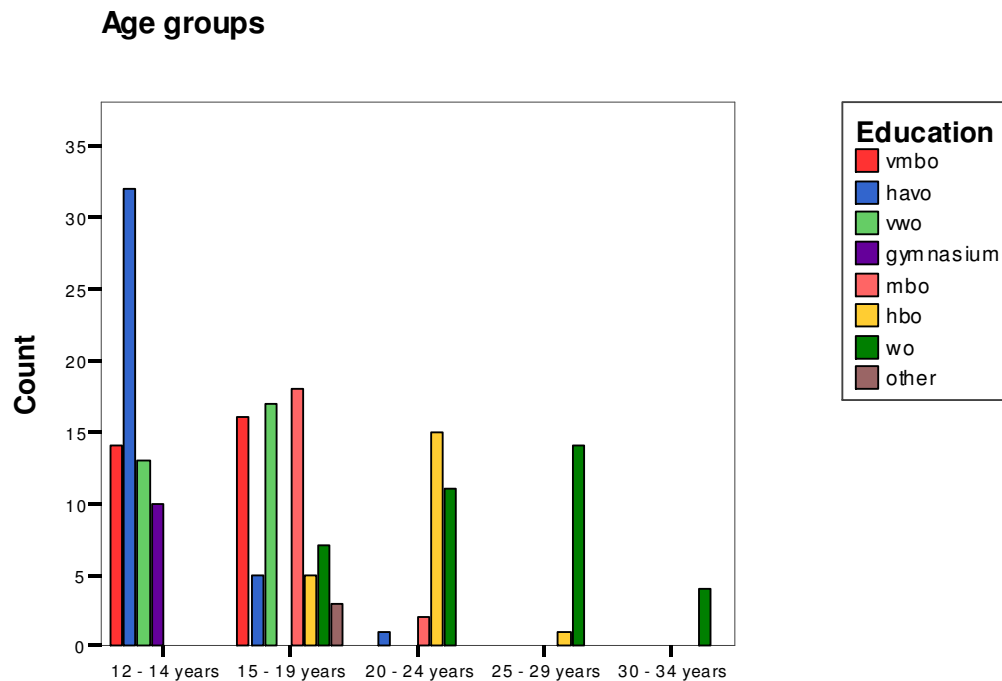
Age groups

Figure 2. Number of respondents for each type of education.

How many respondents have some experience with games?
It is interesting to see that a generation gap is apparent in the results of the question whether the respondent has any experience in playing in a MMOG. This same division is especially apparent in the answers to the question whether the respondent is a member of a 'game clan', a team of players that regularly play on the Internet. Teenagers up to the age of 18 practically all have some experience in gaming, they take much more part in MMOGS and many more of them are members of a game clan. These numbers are significantly lower for young people over 18 years of age. We might claim that the real game generation is now in secondary school; this generation will be entering higher education later. Only then will we know for sure if they truly learn in a different manner compared to the students that are currently in higher education. The overview below presents the respondents' experience with games:
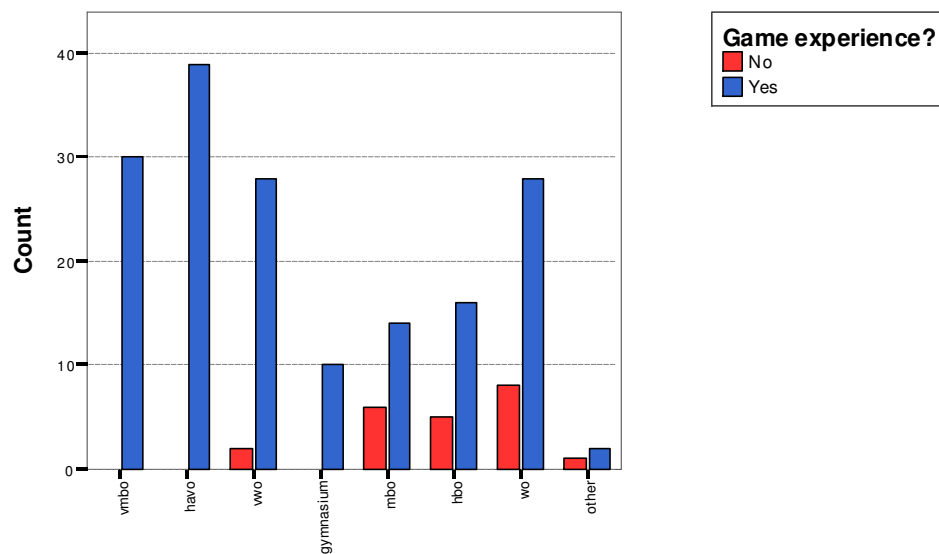
Figure 3. Number of respondents for each type of education and their experience with games.

The tables below show how many young people play in a MMOG and how many are a member of a game clan, divided by type of education:

Age groups * Do you ever play games on the Internet? Cross tabulation

Count

		Do you ever play games on the Internet?		Total
		Yes	No	
Age groups	12 - 14 years	50	19	69
	15 - 19 years	37	20	57
	20 - 24 years	12	12	24
	25 - 29 years	2	8	10
	30 - 34 years	0	2	2
Total		101	61	162

What is the highest level of education that you are currently taking or have taken? * Are you currently a member of a game clan? Cross tabulation

Count

		Are you currently a member of a game clan?		Total
		Yes	No	
What is the highest level of education that you are currently taking or have taken?	vmbo	15	15	30
	havo	9	30	39
	vwo	6	22	28
	gymnasium	3	7	10
	mbo	4	10	14
	hbo	2	13	15
	wo	0	25	25
	other	0	2	2
Total		39	124	163

Figure 4. Number of young people for each type of education that play in a MMOG and are part of a game clan.

It is striking that especially young people from VWO (pre-university education) and gymnasium (grammar school) are less inclined to play in a MMOG or to being a member of a game clan. A subsequent study is required to make clear what could be the cause.

The respondents were also asked if they regarded themselves as a 'gamer'. Only two-thirds of the young people with gaming experience responded in the affirmative. It is remarkable that boys are quicker to name themselves a gamer than girls. It seems that there is a clear correlation with the number of hours that are spent on games, as this is often given as the reason for a negative answer. The relatively low affirmative scores by girls might also stem from the fact that many of them play 'the Sims', which is not considered a real game by many. Winning is not the aim of that game, nor is there any competition, as the game revolves around building characters and relationships.

From the answers to the questions about the amount of time that is spent on average on gaming each day and each week it becomes clear that over 80% are involved in gaming each day. The tables below show a clear picture of the division:

Average number of hours per *week* by level of education	Average number of hours per *day* by level of education	Average number of hours per *week* by age group	Average number of hours per *day* by age group
wo 3,7	wo 0,6	12- 14 years 7,0	12- 14 years 1,4
mbo 3,3	mbo 2,0	15- 19 years 11,3	15- 19 years 2,0
hbo 6,2	hbo 0,7	20 -24 years 4,5	20 -24 years 0,7
gymnasium 8,3	gymnasium 1,3	25- 29 years 5,4	25- 29 years 0,6
vwo 7,4	vwo 2,3	30- 34 years 0,3	30- 34 years 0,0
havo 5,8	havo 1,2		
vmbo 17,6	vmbo 2,6		

Figure 5. Number of hours per week and per day that young people spent on games for each type of education and age group.

It is striking that the more frequent gamers can be found in the age group of 15 to 19. This is largely caused by the enormous popularity of games among teenagers in the VMBO (preparatory vocational education). The spend the most time on games per day and per week. A subsequent study is required to investigate what can be the cause.

What kind of games do young people prefer?
Teenagers generally mention several games in answer to the question which game they prefer to play. This shows that the following genres are the most popular: racing [55%], simulation [50%], sports [50%] and web games [40%]. Racing and sports games are preferred mostly by boys [the proportion of boys to girls is about 2:1 for these games]. Girls prefer simulation and web games, although the proportions here are less extreme [55% girls against 45% boys]. Although there are many platforms on which games can be played, the computer is generally the preferred platform. Over 80% of the respondents use the computer to play the games, followed by PlayStation 2, their mobile phone and Game Boy Advance. Many of the respondents play games both on the computer and a games console.

Almost 60% of the teenagers who spend time on gaming state they just play the games. The others are also involved in other ways, for instance by searching for information on games on the Internet or in magazines, or designing game levels, or downloading mods (modifications), and, what is also important, establishing new contacts through gaming. Gaming mainly provides fun for almost 90% of the respondents. Other reasons that are mentioned are relaxation, diversion, making friends, and achieving status, and a very small group name money as a reason.

What do young people think of the educational value of games?

The respondents were asked to indicate to what extent they agree or disagree with seven statements that referred to Covey's habits as described above. Almost all statements were considered to be reasonably to very important for being successful in playing games. Apparently these habits are skills and attitudes that play a part in gaming and that are also implicitly trained by playing a game. The following 5 answers scored highest on the question what skills they improved by gaming:

1. Reactions
2. Eye-hand coordination
3. Strategic thought
4. Making decisions quickly
5. Solving problems.

On the question whether games can be used in education, more than half of the young people answered that they think that this should be possible. A third has no opinion. It is remarkable that the age group plays a part in the views on games in education:
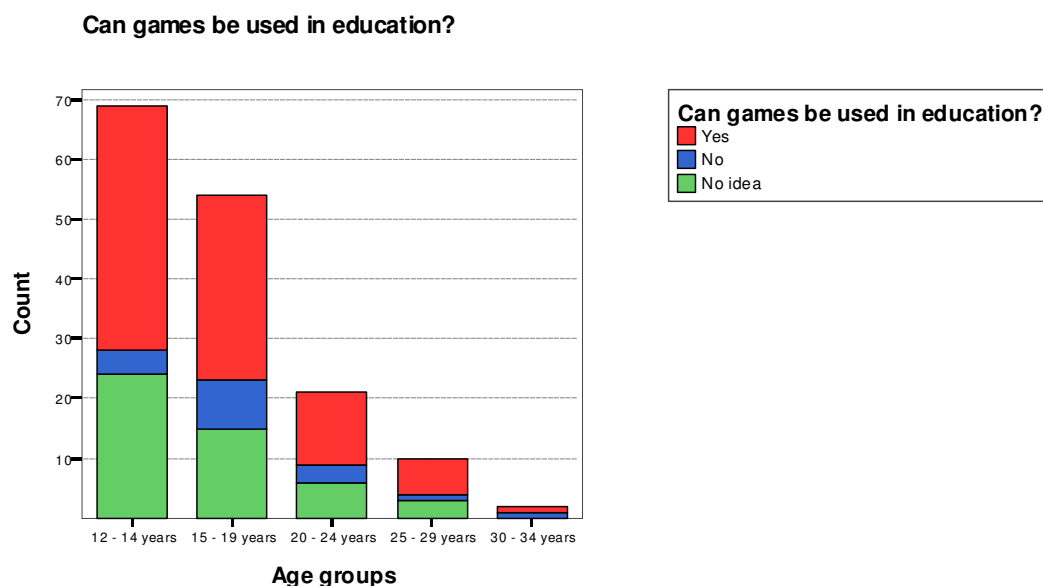
Can games be used in education?

Figure 6. Answers to the question on the useage of games in eduaction.

The proponents think that games can make education more attractive and that gaming teaches them better how to work together. However, more than half of them has never had any experience with a game in education, and for the younger respondents who did have some experience with a game in school this related to small educational games intended to practice a specific skill. One or two respondents mentioned a more complex game such as a stockbroker or investment game.

It is clear that young people play games first and foremost for the fun gaming provides. A second important aspect is their experience that they are becoming good at something. This can refer to skills, but sometimes just to the status that they gain by winning or achieving a record. At no time do they consciously select a game to develop a specific skill, which is quite understandable from the viewpoint that games are played in leisure time.

What do games developers think of the educational value of games?

We interviewed three games developers to gain an insight into their opinion on the possible educational value of games. They were involved in the development of *Miniconomy*, *The Chronicles of Spellborn* and *Kies jij Zelf* (You Choose), respectively. The list of Prensky's habits was used as the basis for the interview.

The game *Miniconomy* is a trade game that is played on the Internet. Creating an account and taking part is free of charge. Once the player has an account he can start to trade. The game is a simulation of reality because players can select all kinds of occupations. At present the game is also used in education, and it has features that allow the teacher to see what the pupils are doing in this simulated environment.

The developer indicated that all of the habits mentioned by Prensky are important in the game *Miniconomy*. The player has to be proactive, or nothing happens and opportunities are lost. The player will have to keep his goal in mind and plan accordingly. It is crucial that the right priorities are set, otherwise the player quickly falls behind and others will take advantage of the opportunities. The players must also maintain their reputation to make other players want to trade with them, and they must optimise their interaction with the others. Making friends is important, and the player must continue to improve himself in order to be and stay successful. The game also makes players think about the real world, in which matters often revolve around money and status, but in which social aspects also play a part. According to the makers, the game *Miniconomy* has a very clear educational value and it is perfectly suited for being used in education. As this will be true of many more games in the future this aspect requires due consideration.

The game *The Chronicles of Spellborn* is about surviving in a fantasy world that has largely been destroyed by war. It is possible to build up a new existence by learning from the past and taking action. This game is played on the Internet. Again all of Prensky's habits are involved. Competition is the basis of this game, and this means the player must be proactive in order to win. For each level a goal is set that players should keep in mind. Setting priorities is important to achieve a goal quickly. A player has more chance of survival if he collaborates with others, and to achieve collaboration it is important that the player understands the others and that they understand him. Obviously a player has to practice to maximise his potential. The makers see an educational value in many games, although this was not on their minds when developing this game. The game's first aim was relaxation and entertainment. This does not change the fact that players can learn and can experiment with things that they do not yet feel confident about in real life.

The game *Kies jij Zelf* is part of a curriculum that is aimed at pupils in (V)MBO (preparatory/medium level vocational education) to prevent them from dropping out of school. Each player plays the game individually. He is asked to make choices to progress in the game. Continuing his education is such a choice, and the consequences of that choice are made clear by the game. As this is an individual game the group habits relating to collaboration are not applicable here, but Prensky's individual habits do play a part. Being proactive is important, just as keeping the goal in mind. It does help to practice a lot because then the goals can be achieved. The maker states that *Kies jij Zelf* serves a very specific purpose, but that there are also many other games from which people can learn much. Playing games such as *Simcity* helps to better understand the world.

What are the most important findings of the study?

First of all we must note that almost 90% or the respondents is involved in gaming, with an average of 8 hours per week. That is quite an amount of time, especially considering that there are teenagers that spent a multiple of 8 hours each week on gaming. Since this activity must be fitted in with other activities within the week we can conclude that choices are being made from all options. It seems obvious to assume that teenagers partly give up TV for gaming, which is supported by other trend studies. Television makers are therefore looking for new solutions to draw teenagers back to the tube, but it is doubtful if they will succeed. There is a crucial difference between TV and gaming in that the latter allows active participation and control by the user. Watching television is passive consumption and apparently teenagers look for an activity in which they can be active and determine the events to some extent. This in itself is a positive reason given that parents used to be concerned about the amount of time their children spent in front of the TV. With the advent of games the problem solves itself. The question then remains whether spending much time on games has negative consequences, especially because violence appears a natural phenomenon in many games. Fierce opponents of games in which violence plays a part point towards the possible correlation between playing certain games and violent behaviour in real life, but as of yet those studies fail to convince. It seems that teenagers who display violent behaviour in real life struggle with personal problems, and the question remains whether they would not have shown similar behaviour without those games. One study[26] even claims to show that watching violent movies has a greater influence on aggressive behaviour. These aspects make it very difficult to ban certain games on those grounds.

It is remarkable that more young people under 18 are involved in games that young people over 18. That might warrant the conclusion that the real game generation is still in secondary school and will enter higher education in the coming years. If it is true that this generation acquires knowledge in a different way and has developed different skills, then this may possibly also have consequences for the way education is set up. For instance, the term 'multitasking' is used with reference to these teenagers, meaning that they can perform several activities simultaneously while being well able to divide their attention between them. They watch the screen in a game in which the action unfolds, 'in passing' read the 'stats' (statistics) representing the information that they need to judge a situation and make the right decision, while participating in a 'chat' that goes on in an additional window on their screen. Apart from the fact that multi-tasking is apparently par for course for these teenagers, it is the interactive aspect of games that is an important reason for them to engage in games, apparently satisfying a need.

For the time being boys are more active in gaming than girls, although the picture is slowly changing. The preferences of boys and girls in gaming are also different. Boys prefer racing and sports games, girls like to play simulation and web games. For boys it seems that competition and winning are important. For girls the importance appears to lie in experimentation with roles and interaction. It would be interesting to find out if the increase in the number of girls who engage in gaming coincides with a shift in preference for different games. It turns out that especially in 'clan-based gaming', in which players form a team that plays online against another team, many clans only comprise males and they develop their own use of language and sense of humour. This might be an important reason that girls feel left out and do not find it appealing, although we will never be sure how many girls are active in clans because a player is invisible and can take on any identity. This is another aspect of gaming, i.e., being able to experiment with identity and roles in order to get to know yourself

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[26] Janzs, J. [2006]. *De uitdaging van videogames*. In: Haan, J. de & Hof, C. van 't [ed.]. *De digitale generatie; Jaarboek ICT en samenleving*. Amsterdam: Boom Uitgevers.

better. LAN parties are becoming increasingly popular. These are events where gamers join up with each other for a couple of days on some location to play games on a very fast network. They have to bring their own computer and be satisfied with very basic sleeping facilities, but that does not deter them from attending these parties in droves. Girls feel less at home there either.

Below we present an overview of the more important game genres, although an unambiguous categorisation of genres is becoming more and more difficult for games, due to the appearance of an increasing number of games that combine aspects of several genres:

o Action and adventure: a character is on a journey or quest. He has to fulfil many tasks and defend himself against attacks.
o Simulation games: the player builds his own world and has to solve all kinds of problems that arise.
o Action and fighting: games that revolve around fighting and conquest to achieve a goal.
o Sports and racing: games that are usually based on real world sports such as football and Formula 1.
o Strategy: games that centre on influencing difficult situations by controlling and using resources
o Role-Playing Games: these are usually set in a fantasy world in which someone builds a character and uses it to act out a certain role.

Of course there are many minigames in the form of puzzle games and the digital versions of games that we know as board games. Many of those small games can be played as a pastime on a mobile phone.

Gaming is a special kind of pastime and entertainment[27], and especially when teenagers take part in games that are played on the Internet. New social connections arise from a shared interest between people that have never met and who may not even know what age the other person is. They meet like-minded people and people with the same passions and interests. Teenagers can experiment with roles, identities and obviously emotions when gaming, and especially when playing Role-Playing Games (MOGGS). In doing so they shape their own identity by exploring the edges and experiencing their own preferences and dislikes. This can, of course, go too far. Teenagers who struggle with problems in real life and who cannot handle these problems adequately, or who are not sufficiently supported in their attempts, can escape to a game's virtual world. In the worst case this can lead to losing touch with reality. Again in this case personal problems must pre-exist; it is not gaming that leads young people to escapism.

Finally we briefly return to the concepts 'prosumer' and 'co-creator' that were mentioned in the introduction. Apparently games are attractive because they invite an active participation en challenge the building of the skills and attitudes in Prensky's habit list. They also provide room for experimentation with roles and identities, and players can exert significant influence on events. Many games allow players to create new mods (modifications) and develop new levels, making them 'co-creators' of that game. The interactive character of games already turns them into 'prosumers' instead of 'consumers'. This teaches us that the roots of 'motivation' are to be found

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[27] Janzs, J. [2006]. *De uitdaging van videogames*. In: Haan, J. de & Hof, C. van 't [ed.]. *De digitale generatie; Jaarboek ICT en samenleving*. Amsterdam: Boom Uitgevers.

in the challenges that games apparently provide. Translating this to education, one might suppose that the real challenge is to change education in such a way that young people no longer are treated as passive consumers in a curriculum that is developed by adults, but contribute to shaping the learning environment and educational subjects in the role of co-creator. That will make education meaningful and ensures that it addresses the need for an active participation in the learning process. This also requires a different attitude from parents and teachers. In this process they no longer can assume an omniscient attitude. They will be part of the same learning community. Life-long learning will then have become a true reality, in which adults obviously will have their own part to play based on their experience and expertise.

Learning through games could take place in many ways. Firstly, certain learning objects could be specifically addressed in a game, although that is as yet the least developed application within education. Practicing certain skills, such as quickly processing large amounts of information or training eye-hand coordination may be very feasible with games. Gaming also provides a good way of starting a dialogue with pupils because it links their world to the world of school and shows that their world is taken seriously. It may be even more interesting to employ the success factors of games: the fact that they challenge teenagers, that they offer them room to influence the events and that in principle they always progress from the level that someone has already achieved. The probabilities of dropping out of school early will be diminished and the results will improve if we succeed in organising education according to similar principles. This does mean that the teenagers must be given more influence on the content and the learning environment and are allowed to step into the part of 'co-creator'. Game developers know all too well what influence the teenagers have on their product. For instance, the developers of 'Battlefield' released a new 'patch' that was not sympathetically received by the players and the gamers called for a B-day (boycott day) on 3 June 2006. Only two thousand people played the game online that day, instead of the usual two million. Some game developers have already been involving players in the further development of a game. Good games show what is attractive about learning, and the teenagers can inform us to give us a better understanding. It is a new development that for the first time we as educators or teachers experience a situation in which teenagers have knowledge of a world that we will never understand as thoroughly as they do. Our knowledge of the world is different and the nature of education will therefore have to develop more into an exchange and a dialogue.

5.   Case study into the virtual world: Networking

Marike Verschoore de la Houssaije
Guus Wijngaards

As long as there have been people, there have been networks. People need one another and wish to make contact. Everybody is a *networker*, even if they do not know the word.

But what exactly is a network? It can be defined as a set of lines that connects people[28]. These lines are our contacts with others; the nodes of the network are formed by a wide range of connecting elements, such as individuals, groups or technical circuits.

Why do networks attract this much attention? This is obviously the result of the enormous increase in communication facilities through ICT. Over the last few years our society has acquired a very powerful infrastructure. Within this infrastructure users are still looking for new ways to take as much advantage as possible from ICT. The users rather than the developers or the technicians determine what is useful or entertaining and what will eventually become a success[29]. Networks play a vital part. A well-known example of unforeseen use of ICT is the exchange of music and films in so-called *peer-to-peer networks*. Instant Messaging is another good example, because the initial intent of the designers was to create a community of business people, not a community of mostly teenagers.

The popularity of the Internet as means of communication, sharing interests and buying things virtually forces the individual to network. Networking increases the social sphere of people but also creates *network individualisation*[30]. On the one hand individuals are becoming more and more like nodes in a network, are displaying increasingly mobile behaviour and are developing a web of diverse and geographically dispersed contacts. On the other hand, the immediate surroundings of the individual, including for instance family members, are not part of the digital network. This situation can result in all kinds of alienation. Do parents know what their children are involved with, and with whom? Furthermore, only an aspect of the individual, such as a certain role or specific interest, is known and considered important within the networks. In a network we are a colleague, citizen, relative, friend, acquaintance or sportsman. In this way the new networking possibilities provided by the new means of communication stimulate social contact as well as individualisation.

Whatever the extent of their fascination of events in the rest of the world, people are mostly interested in their own private and professional lives and the social contacts they entail. The majority of the contacts in their networks derive from their own sphere. Networker have a base and are not wanderers. The Internet is an extension of their own social life with its own characteristic and specific possibilities.

Of course, there can be very good reasons to involve people that do not come from your own circle in your network. Especially if you want to learn more about a hobby, if you want to travel or want buy something that supermarkets just do not sell. In such cases actions are goal oriented and selective: you look for the most successful actions and actors.

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[28] Jan A.G.M. van Dijk, *Netwerken, het zenuwstel van onze maatschappij* (Inaugural lecture, 1 November 2001) offers a scientific definition: *A network is a relatively open system that connects a number of relatively closed systems.* Closed systems are taken to refer to individuals, groups, organisations and societies.

[29] Valerie Frissen, *De domesticatie van de digitale wereld* (Inaugural lecture, 25 June 2004)

[30] Barry Wellman (2000),*Changing Connectivity*: A Future History of Y2.03K'
Sociological Research Online, vol. 4, no. 4, http://www.socresonline.org.uk/4/4/wellman.html

The study
Teenagers have a special reason for networking. They use the Internet as a digital hang-out. For social contacts, obviously, but emphatically also to establish their own identity in groups that really matter to them: their friends, friends of their friends, relatives, sports mates, etc. Within those networks they create their own profiles and share their opinions on everything and more. How this is received by the others is extremely important.

We asked over 400 pupils, almost all of 13, 14 and 15 years of age, to fill out a questionnaire in order to gain an insight into how teenagers network. These were pupils at the Sint-Laurenscollege in Rotterdam-Hillergersberg – a comprehensive school for havo (advanced secondary education) and atheneum (pre-university education) with a catholic background -, at the Krimpenerwaardcollege in Krimpen a/d IJssel – a non-denominational comprehensive school for mavo (middle level secondary education), havo, atheneum and gymnasium (grammar school), -, at the ISW, location Tiendweg in Naaldwijk – a comprehensive school whose respondents were all taking havo or vwo (pre-university education) – and finally at the Wartburg College, location Revius in Rotterdam, a protestant comprehensive school.

The questionnaires provide interesting insights into the how and why of networking among teenagers and they also show what they learn from networking:
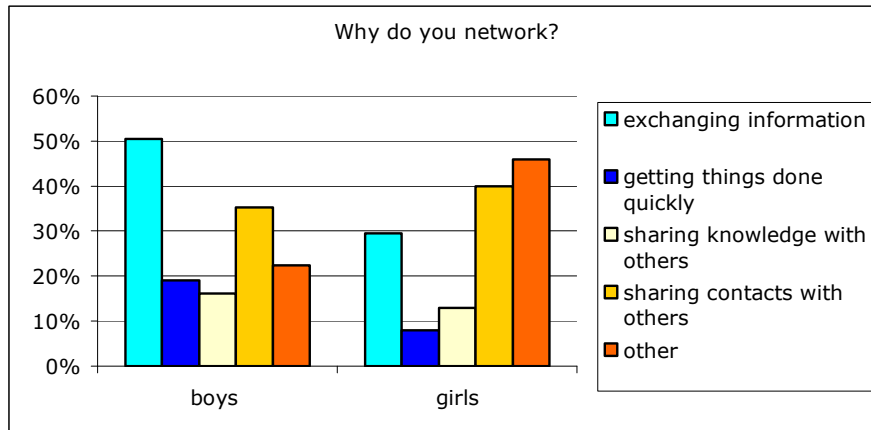
- o They learn to make contact and communicate with others
- o They learn to use the computer and the Internet for all kinds of activities without any conscious effort
- o They learn to be selective and target oriented
- o They (subconsciously) develop their own identity
- o They get help in doing homework, in their studies and in finding information
- o They learn from the opinions and ideas of others

How much time?
The majority of the teenagers spend 30 minutes to three hours consecutively on the Internet each day. 33.3% indicate they spend 30 to 60 minutes on the Internet. 37.6% average one to three hours of Internet each day. Girls spend more time in front of a computer than boys. For 14% of the girls this is even more than three hours a day (against 11.7% of the boys)!

With what aim?

66.4% use the Internet for school purposes as well as for personal purposes. This mainly involves communication, contact with others. It is remarkable that this is especially important to girls (girls 91.5%, boys 61.5%). A third of the teenagers indicate that searching for and finding information is their main aim in using the Internet. Six times as many boys as girls mention gaming as the second most important aim. There is also a small remaining group (3.7%) that state they only use the Internet for school.

Why do you network?

Where?

86.1% network at home and 59.9 at school. Non-virtual locations where they network only show up as third and fourth: parties (26.7%) and sports clubs (18.1%).

With whom?

They almost all (98.3%) network with friends, 88.6% with classmates and 66.6% with relatives. They also network extensively with friends of their friends (41%) and sports mates (46.9%). It is striking that in general girls network with more people than boys and that boys have more classmates in their network. A remarkable 41.7% of the pupils that play games states that they have gained contacts anonymously through gaming on the Internet.

What do you do?

More than half (53.8%) indicate that they exchange information in answer to the question what they do when they contact others on the Internet. Only 16% indicate they use networks to get things done quickly. 20% want to share knowledge. It is remarkable that about half (49.1%) find it important to share contacts. A significant group (31.3%) indicate that they use the Internet mostly to maintain social contacts: "talking to friends, chit-chatting, having fun and Instant Messaging".

Girls outnumber boys in networking, because they want to share contacts or because they "just want to talk, chit-chat, for fun and social contacts". They also find networking more enjoyable than boys (85% against 75.9%).
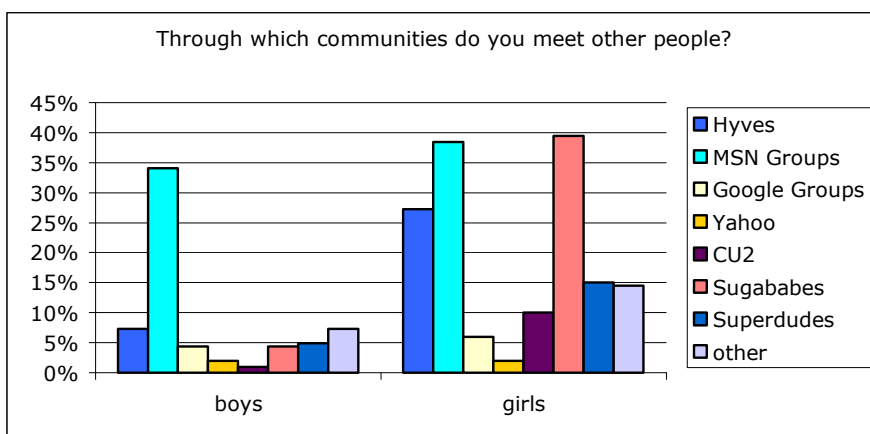
Which channels?

The following answers were provided to the question about the ICT channels that pupils use to network[31]:

DEZE TABEL IS NIET VOLLEDIG VERTAALD. MOET NOG VERVANGEN WORDEN.

	pupils	boys	girls	pupils	boys	girls
MSN	88,9%	83,9%	94,0%	90,4%	87,8%	93,0%
e-mail	72,1%	67,8%	76,5%			
Texting	61,0%	48,3%	74,0%			
Websites	45,9%	39,5%	52,5%			
Games	37,3%	52,2%	22,0%			
Communities	21,5%	14,1%	29,0%	59,4%	48,8%	70,0%
Chatbox	11,1%	9,8%	12,5%	16,5%	17,1%	16,0%
Weblogs	8,9%	8,8%	9,0%	15,8%	6,4%	25,5%
Forums	8,6%	10,2%	7,0%			
Young people network	3,0%	1,5%	4,5%			
Other	2,0%	2,4%	3,5%			
Newsgroups	1,2%	2,4%	0,0%			
ICQ	0,5%	1,0%	0,0%			

The high percentages for MSN and *communities* (virtual spaces where people can meet) is remarkable. Teenagers are quite active in these communities: 42.2% less than three hours a week, 21.7% between 3 and 6 hours, 12.7% between 6 and 9 hours, 7.8% between 9 and 12 hours. No less than 15.6% visit communities for over twelve hours a week.

45 pupils mentioned another *community* under 'Other', mostly *Partypeeps* and *MSN Space*.

Friendships?

Many pupils, and girls more than boys (67.1% to 56.3%), indicated that they had acquired one or more friends by visiting *communities*. They gave a quite favourable judgement of the quality of the friendship: 40.0% speaks of good and often recurring

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[31] The latter three percentages represent a later question in which the respondents were asked if they use a chatbox, visit communities, play games or maintain a weblog.

contacts, 37.8% even of good friends. Again girls are slightly more positive in their judgment than boys.

Contacts and friendships that arise through Instant Messaging are given a favourable judgement by even more teenagers: 66.7% of almost all pupils (only 9.6% of the pupils do not use Instant Messaging) state that they have acquired one or more friends through Instant Messaging. 45.2% speak of good and often recurring contacts and 412% of good friends. Boys speak of good contacts and girls of good friends.
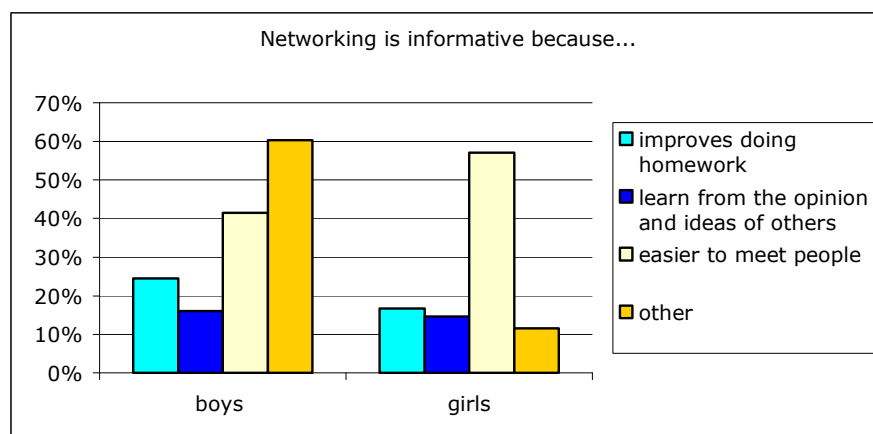
Chatbox?
A public chatbox is an Internet platform that is open for everyone to visit. A closed chatbox, such as MSN, is not. No chatting without permission takes place on MSN. There you need permission from the conversation partner to chat or in reverse you have to permit the conversation partner to chat with you. Popular public chatboxes are for instance www.tmf.nl, www.foxkids.nl, www.chatten.nl and www.chat.nl. 16.5% of the pupils state that they join in chats on these platforms. The contacts and friendships are judged less favourably here (28.0% and 20.0%). Again boys prefer to speak of good contacts and girls of good friends.

Games?
Boys are more involved in gaming than girls (81.5% against 57.5%). Most game players (66.0%) state that they play games less than three hours a week. The others however, spend more much time on games. 9.2% even spend over twelve hours a week on games. Over a fifth of the game players indicate that they have acquired one or more friends through gaming and 28.7% of the boys and 8.7% of the girls have become acquainted with new people. About 60% of them speak of 'good contacts and friends'.

Useful and informative?
The pupils were also asked whether networking is useful and informative. Almost half find networking informative because they can meet and make contact with people more easily. 20.5% indicate that it improves their homework. 15.3% state that by using contacts in their networks they can learn from the opinions and ideas of others. 14.8% provide a different reason, usually a combination of the preceding answers. Only a few indicate that they do not find networking informative.
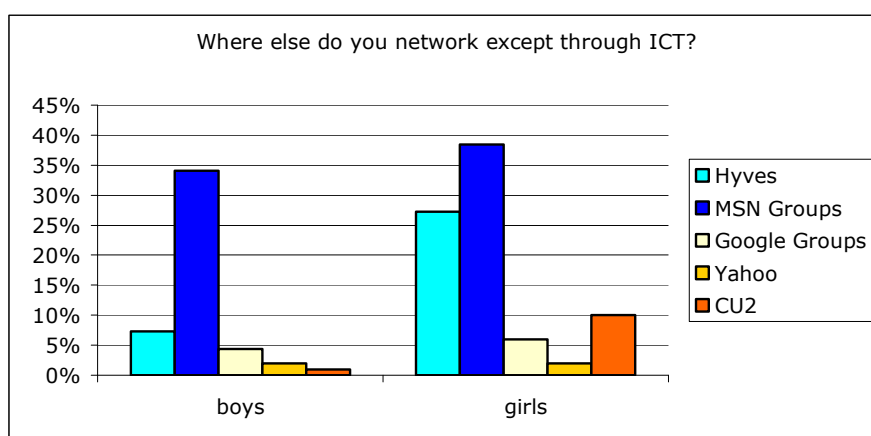

Networking is informative because...

- improves doing homework
- learn from the opinion and ideas of others
- easier to meet people
- other

A conversation with three pupils on networking

Three pupils of the Krimpenerwaardcollege in Krimpen aan de IJssel who participated in the questionnaire were also found willing to tell more about their own networking behaviour. They were Wendy, Marion and Liza. They indicated that they spend about ten hours per week on the Internet. Liza: *"At least an hour each day, that is about seven hours, but it is more in the weekends"*.

Wendy and Marion think that on average they spend more time on the Internet than their friends. The girls mainly spend time on MSN, but they also make their own websites and look up things for school.

The concept of networking is not really familiar to the girls. However, after some explanation it quickly becomes clear that they subconsciously engage in networking. They network with almost everyone, i.e., friends and relatives but also members of the sports club. Liza mentions the following about her networks: *"Slightly more with friends than with class mates. I generally talk to everyone who's on my MSN list"*. According to the girls most networking takes place at home, at school and at parties.

Networking with classmates is done for school assignments, but it is also just social. School is mentioned most as an example of networking. Wendy comes up with the following example of networking: *"When you are working together, for instance on an assignment. That you are able to talk about how to do things while you are doing that"*.

The concept of a 'community' is not familiar either to Wendy, Liza and Marion. Wendy and Liza do use Hyves. Liza uses it often. She goes there and mostly leaves messages for her friends every time she is on the Internet. The people that are in her list of friends are people that she has met through other people, the sports club or school. Wendy: *"You meet people and you think, hey I know them as well, and then you add them"*.

Marion is the only one who is active in gaming on the Internet, for some three hours a week on average. She likes to play *Habbo Hotel* especially. *Habbo Hotel* is a virtual hotel where players can create and dress their own Habbo. They can walk around in the hotel, create their own room and organise a party with their new friends. She also plays what she describes as *"silly but addictive games"*. She meets others through gaming, but only to exchange information, for instance on cracking codes. *"That is useful actually, because it makes the games easier to play"*.

Wendy and Marion are active in a chatbox. Wendy can mostly be found on www.webpiraat.nl. This is a very large site with a forum where visitors can exchange information. Marion chats in the chatboxes of www.chatten.nl and www.chatplaza.nl. Wendy is the only one to have acquired pleasant contacts from chatting in a chatbox.

Wendy and Marion both have an MSN Space weblog. Wendy also has three different weblogs on www.weblog.nl. She keeps the blogs because she likes creating and designing and likes to tell her story to others. For instance, she posts stories about the swimming contests in which she competes.

Their parents do not know about the girls' contacts with other people on the Internet. Marion: *"They don't know exactly what I do, but they do not like it much. I spend quite a lot of time on the computer and then they tell me that I'm not living in the real world"*. Wendy confirms her story: *"Yes, my father practically drags me away from the computer in the evening because he needs to use it himself. But on the other hand they think it's ok because my friends all live far away and they like it if I continue to keep in touch with my friends"*.

The girl's parents impose few rules regarding the time they are allowed to spend on the Internet. Wendy and Liza compete with their little sister and brother who gets to use the computer when. Marion has been told that she is not allowed on the computer between five and six o'clock.

The girls think that their teachers think it is important that they use their networks for working together and doing homework. Wendy: *"You usually get two school hours for assignments and you have to do the rest at home. That is very annoying sometimes, because it is not always possible"*.

The girls engage in *multitasking*. They distinguish between home work and regular Internet use. They turn off the computer or put it on a screensaver when they "really have to learn". On the other hand many tasks are carried out simultaneously when they look things up for school. Wendy: *"I'll have eight websites and twelve MSN windows open and it goes on from there"*.

The girls gave an affirmative answer to the question "Do you think that networking (meeting others) is easier on the Internet than in real life?". Liza: *"I think that I meet others more easily than real life. People can't immediately judge others because they cannot (yet) see each other in reality. It is also easier to meet more different people on the Internet"*. It is Marion's opinion that maintaining contacts is easier in the real world compared to the virtual world.

The girls are more confident when saying things on the Internet than face tot face. Wendy: *"I actually find it easier because you don't have to look at that person. That is very difficult for some people because of fear of failure and shyness. I have experienced this myself and therefore I talk much more easily on the PC, and more openly, than if that person were standing in front of me"*. Marion and Liza totally agree. Marion: *"I can be shy when I'm face to face with someone, but I don't have that when I'm on the Internet"*.

6. Case study into the virtual world: Cyber bullying

Mirjam Remers
Chinta Ceuleers
Pieter Swager

Cyber bullying appears to be on the increase. Manifestations of 'cyber bullying' are children who send nasty text messages, or put someone's picture (possibly with a hurtful subscript) on the Internet without permission, calling names in a chatbox or on MSN.

Is bullying of all times?
As long as there have been people, there has been bullying. It is only the manner of bullying that changes. The advent of the Internet and the changing way in which people communicate also change the 'space' in which bullying takes place. Cyber bullying used to be a fringe issue only a few years ago. Today most children have an Internet connection at home, and bullying appears to increase in its expressions and its frequency. Whether or not it is regarded as a problem by teenagers, parents and teachers, one first has to know what is happening online to combat this kind of bullying.

Bullying or teasing?
Is bullying less bad if it is called teasing? Is bullying a real problem? The Internet provider Planet Internet undertook a survey on this subject. Teenagers were asked about teasing respectively bullying on the Internet. The study took place in 2005[32]. Some results:

o Putting someone's picture on the Internet is regarded as 'teasing' by 26% of teenagers, whereas 69% consider it 'bullying';
o Many young people between 11 and 15 years of age think that bullying on the Internet is funny, except when it happens to them;
o Many acts of bullying are regarded as a joke: 12% think that calling names by e-mail or Instant Messaging is 'funny'. This is only 7% for calling names in real-life;
o On the other hand, 82% of the victims find digital abuse 'mean and hurtful'.

Cyber bullying just as bad a 'regular' bullying?
A recent web survey of the AOB (Algemene Onderwijs Bond, general union of teachers) shows that although many people may worry about bullying, they are not worried about the fact that this takes place on the Internet. Six out of ten of the respondents considers cyber bullying just as bad and feel that only the manner is different. A large minority think that it has a stronger impact[33]. A recent survey by IVO[34] shows that a cyber bullying occurs less frequently than bullying in real life. Bullying in real-life also seems to have more adverse effects than cyber bullying. However, cyber bullying can reinforce the damaging effects of bullying in real-life. The teenagers that are bullied in real life as well as online are more depressed, more lonely and have a more negative self image compared to teenagers that are only bullied in real life or only bullied on line. The IVO study also shows that boys and VMBO pupils (preparatory vocational education) are more likely to be bullied than girls or HAVO (advanced secondary education) or VWO (pre-university education) pupils. The teenagers who are bullied in real life spend more time on the Internet than teenagers who are not bullied.

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[32] Bureau Qrius undertook the study in 2005 on behalf of Planet Internet. See: www.planet.nl
[33] See: Het Onderwijsblad, nr. 8, 15 April 2006. See also: www.aob.nl
[34] IVO is a scientific organisation for research and advise in the field of living habits and addition. The findings of the study are presented at www.ivo.nl.

What do we need to know about cyber bullying?
We will have to get answers to the following questions regarding the nature and extent of cyber bullying in order to determine if we have to do something about cyber bullying and if so, what it is we have to do:

- To what extent do children experience cyber bullying?
- What kinds of cyber bullying do they experience?
- What part do they take in cyber bullying? Victim or perpetrator?
- Do pupils know where to turn to (at school or at home) when they are bullied online?

INHOLLAND Centre for eLearning study into cyber bullying
We asked over 600 pupils to fill out a questionnaire on this subject in order to acquire a good insight into the nature and extent of cyber bullying. The respondents are mainly pupils in the higher grades of HAVO and VWO. Almost a quarter of them attend an international school in the Netherlands.

The respondents attend the following schools:

- *Regionale Scholengemeenschap Hoeksche Waard* in Oud-Beijerland
- *Prisma College* in Breda
- *Vlietland College* in Leyden
- *AISR American International School* in Rotterdam
- *The British School in the Netherlands* in Voorschoten
- *RISS*, the international school of the Wolfert van Borselen School in Rotterdam

The study was conducted on behalf of the Centre for eLearning at the INHOLLAND University of Applied Sciences. It was undertaken by students at the School of Communication in Rotterdam in March to May 2006 as part of a wider study into the ICT behaviour of teenagers. The questionnaire was designed in collaboration with the Meldpunt Discriminatie Internet (MDI, Complaints Bureau for Discrimination on the Internet)[35]. The questions put to the pupils of the international schools were phrased in English.

The pupils' answers provide information (trends) on the Internet behaviour of teenagers. The INHOLLAND study mentioned above focused on cyber bullying and discrimination on the Internet. In this report we restrict ourselves to cyber bullying. The study also provided general information on the ICT behaviour of teenagers. The complete results of the study are available at the website of the Centre for eLearning of INHOLLAND University of Applied Sciences in the sections 'Activiteiten' and 'Publicaties'. See: www.INHOLLAND.nl/elearning.

What exactly is cyber bullying?
Cyber bullying is understood to mean bullying on the Internet. Among other things it comprises threats and bullying on MSN Messenger, putting up pictures or other personal information with hurtful comments on websites, sending insulting or threatening e-mails or text messages, pretending to be someone else in cyberspace, spreading malicious gossip or breaking into someone's computer (hacking).
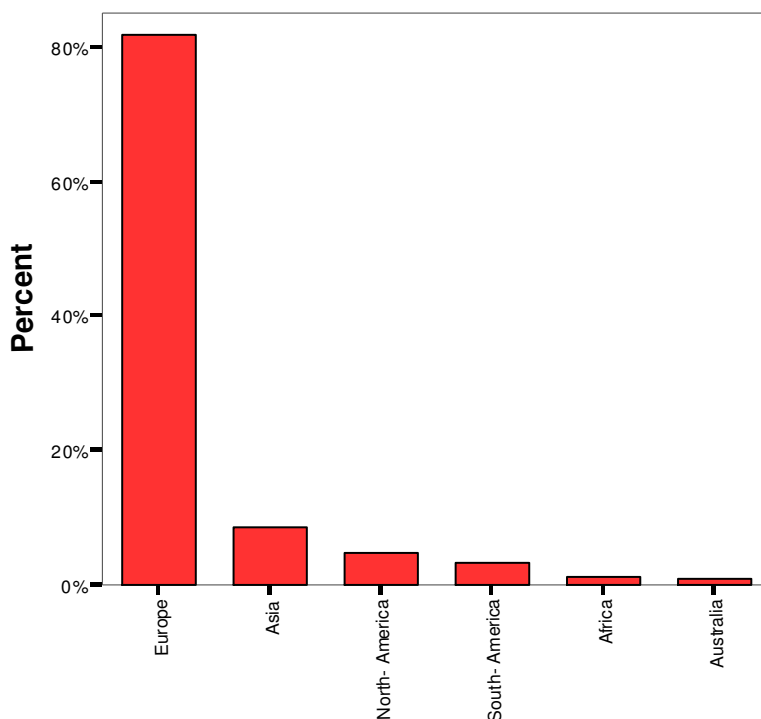**What are the characteristics of the group of respondents?**
72% of the respondents attend a Dutch school, 28% attend an international school. The proportion of girls and boys is about equal. Over half of the respondents (54%)

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[35] See: www.meldpunt.nl for more information on complaints on discrimination on the Internet

attend a school in a city. Somewhat less than half attend a school in a village. Most teenagers (82%) are of 'European' descent.

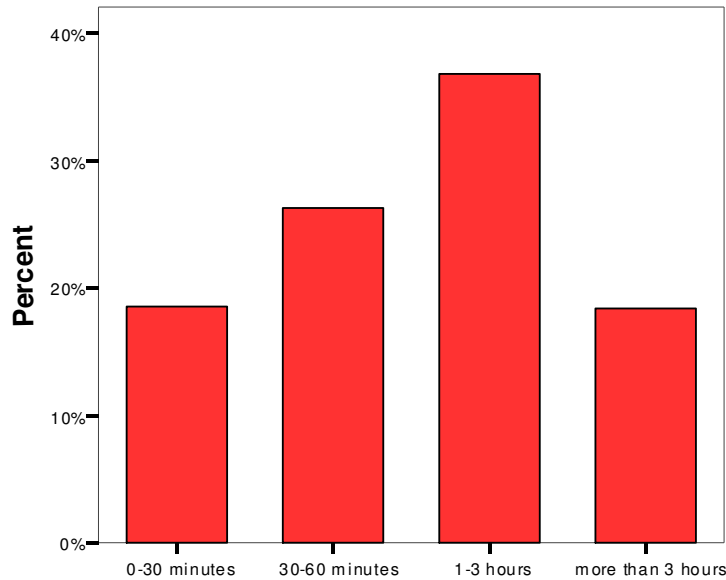## Which ethnic group do you think you belong to?

Internet connection at home?
It is useful to know whether most children have access to the Internet at home. The availability of the Internet at home turns out to be extensive: almost all of the respondents (97%) indicate that they have access to the Internet at home.

How much time on the Internet?
The children were asked questions on their Internet behaviour in order to determine whether they are often active on the Internet at home and at school. More than half (55%) indicated they were on the Internet at home for more than an hour each day, for one in six this is even more than three hours a day. Boys spend more time on the Internet than girls. There are even twice as many boys as girls who spend more than three hours a day on the Internet at home. Almost all of the respondents (96%) indicated that they also use the Internet at school. However, the time that they spend online at school is limited. Only 4% of the respondents indicated that they spend more than one hour a day on the Internet at school.

How long on average do you spend on the Internet at home?

Is cyber bullying noticed?

Over a third (36%) of the respondents was aware at some point that someone was being bullied on the Internet. This involved any the following: sending a virus through the Internet, intentionally ridiculing someone on a webforum or website, sending hatemail, calling names on MSN, putting up someone's picture on the Internet without permission, and other forms of bullying on the Internet.

Calling someone names on MSN scored highest: this was mentioned by 68% (with several answers allowed). The fact that cyber bullying is a general phenomenon is supported by the lack of significant differences between boys and girls, the city versus villages and pupils of different descent.

Have you ever noticed that cyber bullying occurs at your school or in your community? If so, how?

Legend:
- ■ I have noticed that someone sent or received a virus over the Internet (31,3%)
- ■ I have noticed that someone was being ridiculed on a website or forum (39,3%)
- ■ I have noticed that someone intentionally sent or received hatemail (45,1 %)
- ■ I have noticed that someone was being called names or was calling someone names on MSN (68,1 %)
- ■ I have noticed that someone intentionally put up pictures of someone on the Internet without their permisson (32,4%)
- ■ I have noticed that someone was being bullied in some other way on the Internet (8,5%)

Have you ever been bullied on the Internet?
Only 15% of the teenagers indicate that they themselves have been the victim of bullying on the Internet. Again calling names over the Internet was mentioned by the victims (60%) as occurring most.

Have you ever bullied someone on the Internet?
Slightly more than one in ten of the respondents (13%) indicated that they have bullied someone on the Internet. A large majority of the bullies (70%) 'opted for' calling names over the Internet.

Who can you turn to?
Slightly more than half (52%) of the respondents does not know whom to turn to at school when being bullied on the Internet. 82% of the respondents indicate that they do know whom to turn to at home (or in their immediate surroundings) if they are the victim of cyber bullying.

Do schools undertake action against cyber bullying?
It appears that schools do not take cyber bullying seriously. Only 6% of the respondents state that their school undertakes actions against cyber bullying. More than half (59%) have no idea if their school truly takes action against the phenomenon. 35% state that their school does not undertake any action.

What can schools do against bullying?
The last two questions of the survey were open questions. We asked the teenagers the following:

What (else) do you think that the school can do (or can do better) to combat Internet discrimination and cyber bullying?

The wide-ranging answers that pupils provide to this question show one thing at least: they have no suggestions. Only a handful of the 600 respondents came up with an idea for what schools can do to combat cyber bullying. Most responses show that either they do not know ('no idea' scored very high) or that they think that the school has no part to play here. The outcome need not surprise us, as studies show that most cyber bullying takes place 'in the home'.

The following suggestions 'for the school' were provided:

- *organising an information meeting*
- *setting up a complaints desk that can also provide support*
- *providing more information on whom to turn to, and involving the police more often*
- *paying more attention*
- *having teachers discuss these matter with pupils*

Some reactions (in English) from pupils at the international schools:

- *Do not let the students use MSN at school*
- *Teachers can check the histories and check what the students have done on the computer (tracking). Also check their email, however it is private!*
- *Maybe block specific sites that are known for cyber-bullying and internet discrimination.*
- *Hang up some posters or make a PowerPoint and show it to everybody at the school.*

What can parents do?
The second open question was:
What (else) do you think that your parents/care takers can do (or can do better) to combat Internet discrimination and cyber bullying?

This question also got very little response. Most just do not know.

Some suggestions from pupils of both national and international schools for their parents:

- *Parents must keep check if their child is being (cyber)bullied or is doing the bullying*
- *Parents should remove MSN from the computer*
- *Parent should keep the computer downstairs so they can better monitor what happens*
- *Parents should talk more to their children about their problems*
- *Well, just talk a lot with your children, to be with an open mind with them, because some children have a dirty mind.*
- *Keep students away from contact with strangers.*

The most rigorous solution against cyber bullying came from a pupil who suggested that the parents just pull the plug on the computer. Whether this also applied to his own computer could be established afterwards. "For parents it's impossible to do anything because most of the time the children know more of Internet compared to parents!" When asked, some of the respondents confirmed this statement. They also have the impression that most parents of their school mates 'have no idea of the Internet'.

What does cyber bullying look like in practice?
A random example. Wouter (13 years, second grade of pre-university education) comes home on Tuesday at the end of the afternoon after tennis class. He opens the account of his favourite Internet game, the Ogame, in which players can develop 'worlds' but in which you can also be attacked by intruders, other players. Wouter is an 'average' kid of thirteen and has never encounter grievous physical or verbal violence. He receives the following message in the chat that is linked to the game:

06-07 17:14:41	ThEnOsY [3:7:6]	Geen onderwerp

Je bent een fucking dieptrieste kanker homo! Tering Wouter!! Je verkloot alles waar anderen om geven!! Ik ga je helemaal kapot maken tering leier!! Uit de baarmoeder gerukte neukfout!! God schiep de schapen god schiep het woud god schiep jou , ach ja iedereen maakt wel eens een fout!! Ik wil alleen ff zeggen dat je OP MOET TEREN!!! FUCKING KANKER HOMO!!!!
Nou het beste met je ahum FANTASTISCHE ally. en jij ook het beste toegewenst (ookal meen ik er geen f*ck van....)

Je ergste nachtmerrie.

rapporteer belediging?

Text in picture: *You are a fucking sad sick homo! Rotten Wouter!! You fuck everything up that other people care about!! I'm going to tear you apart, you filthy bastard!! Fuck failure torn from the womb!! God created sheep, God created a lake, God created you, ah well everyone makes a mistake sometimes!! I just wanted to say that you have to FUCK OFF!!! FUCKING SICK HOMO!!!! Well, wish you the best with your hmm FANTASTIC ally, and all the best to you too (even though I don't f*cking mean it…)*
Your worst nightmare.
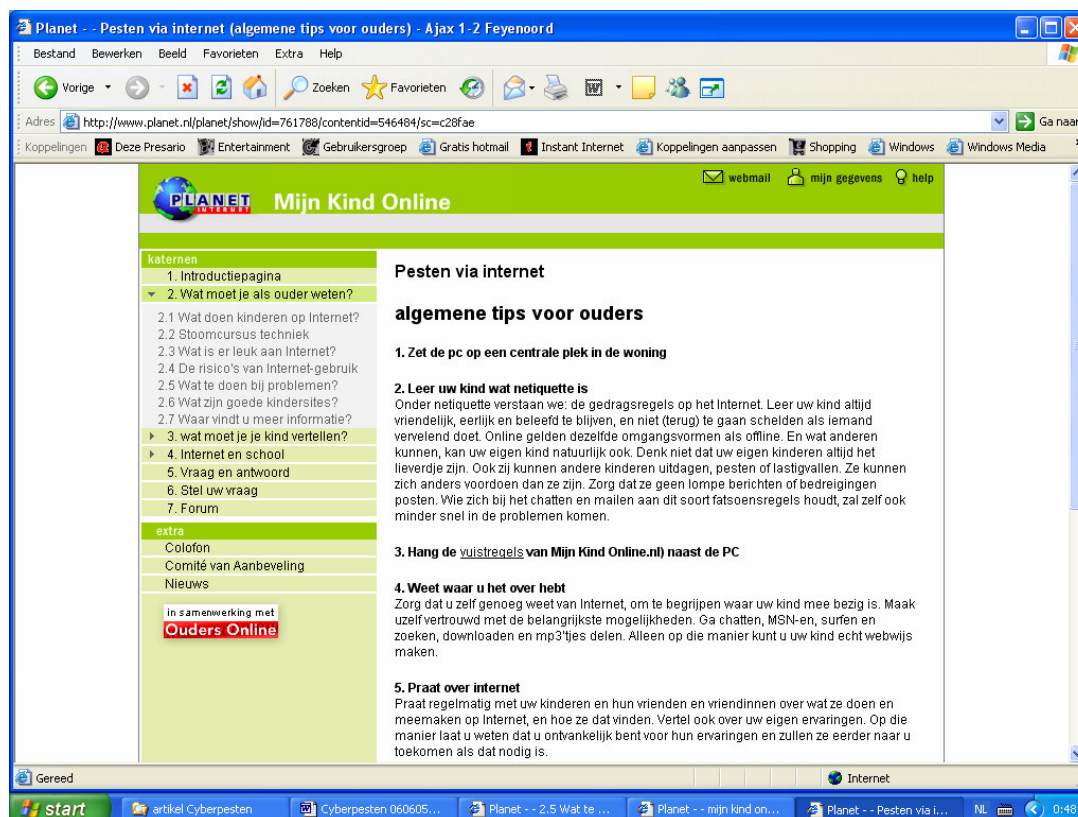   *[box] report abuse?*

Severely upset by this digital violence he calls in his sixteen-year old brother, who is clearly less shocked. Still reeling from the confrontation he tells his father that he has received a 'very strange message' and that he doesn't dare repeat the words. Together they have a look at the message and they immediately decide to report the incident. In many games this is easily done by copying the text and sending it to the moderator. Within the hour the bully is locked out of the game. Requesting a new account and starting the game again takes less than a minute, so the bully is hardly eliminated for ever, but the moderator's response is adequate at the moment of the incident.

How can you combat cyber bullying?
Cyber bullying is just as undesirable any other kind of bullying. The internet offers us several sources of information that we can use to combat cyber bullying.

Pestweb (bullyweb), is a national expert centre for the prevention and treatment of bullying aimed at children, teenagers, parents and teachers who experience the problem of bullying at school and/or at home. Cyber bullying is emphatically one of the focus areas. Pestweb has its root in the Onderwijstelefoon (education phone) and receives funding from the Ministry of Education. Pestweb's website (www.pestweb.nl) provides an accessible overview of tips for the different target groups. It present tips for children (of various ages), parents and teachers. It also has references to relevant sites and training courses.

A second up-to-date and accessible source of information on cyber bullying is hosted by the Internet provider Planet Internet which has developed a website with a large amount of information on the subject in collaboration with 'Ouders online' (Parents online). The site www.mijnkindonline.nl (my child online) presents information and tips for parents; www.mijnleerlingonline.nl (my pupil online) contains a wide range of background information on cyber bullying. It also contains a set of 'rules of thumb for Internet use' that can be printed out and put up next to the computer.

Planet Internet site "Mijn kind online" (My child online)

Which are the most important tips?

It seems illogical to formulate concrete tips on a phenomenon that is yet hardly considered a problem. For instance, a recent study by the GGD (public healthcare service) in the south of Limburg shows that 9 out of 10 parents think that their child is not a cyber bully; 8 out of 10 thinks that their child has never been bullied on the Internet[36]. These figures indicate that cyber bullying is not on the parents' agenda. The cause is undoubtedly a lack of knowledge about the Internet behaviour of their children and about the facts on cyber bullying. However, especially parents have a part to play in combating cyber bullying because it mostly occurs in the home. For this reason we include some tips for parents (source: www.pestweb.nl). The site has a separate section for teachers containing suggestions, teaching materials, training materials and general information.

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[36] The study was published on the Internet on 25 April 2006 under the title: 'Cyberpesten: Big Deal?!'. It was conducted by the Open University (OU) on behalf of the GGD.

What can you do against cyber bullying?

o **Make sure you know what you are talking about.** The Internet may be unknown territory for you. Go and chat on the Internet, get on MSN, go surf and search, download and share mp3s. You will learn to see the risks for your child, but you will also experience how much fun the Internet is for children.

o **Guide your child.** Teach your children to use the list of favourites in the webbrowser. It provides a natural way to find out what your child has discovered. Also teach your children never to download games and software by themselves.

o **Talk about the Internet.** Talk about your own experiences and ask your children what they do and experience and how they feel about it. If you know about the Internet and show an interest, your child will be inclined to turn to you if the need arises. Build up a mutual confidence.

o **Put the computer in a visible place for children under 13.** This will give you a better idea of your child's Internet behaviour and you will be around if something bad happens.

o **Set rules for your children** on what they can and cannot do on the computer and consider putting them up next to the computer.

o **Install a good virus scanner and firewall** and update the corresponding virus database at least once a week.

o **Be around when your child signs up for a site.** Sites often require that visitors sign up to play games or do other fun things. If you are around you can see what kind of information is sent where.

o **Make sure that your child never provides personal information on the Internet.** Teach your child to always use an alias. That is the norm on the Internet. Instruct your child to never put up names, phone numbers or an address anywhere, not even on their own homepage. This also includes the name of their school, their friends, brothers and sisters. Also make clear that if they put something on the Internet, it will never go away.

o **Do a weekly check (together with your child) on the 'history' of the Internet browser.** This way you can see what your child does on the Internet. Tell your child not to disable this feature.

7. Case study into the virtual world: ICT and the relation between home and school

How ICT is used and how it could be used in the communication between parents/pupils and school

Lisanne Huijts
Poysan Vuong
Jos Fransen

Almost every home in the Netherlands has a computer these days and an Internet connection is the rule rather than the exception. Pupils and their parents use it extensively to communicate with the world around them, ranging from purely functional communication to reaching out to friends and relatives. Activities are increasingly done from the home, such as shopping, paying bills, finding information or participating in discussions. An increasing number of people have their own website or we*blog* to share knowledge or personal experiences with others. Teenagers are engaged in the digital community in all kinds of ways and they use all available facilities to meet others, exchange experiences or take part in online games.

The strong increase in the use of the Internet begs the question what this implies for the communication between the school and the pupil's home environment, that is to say, between the school and the pupils during the time they are not at school and between the school and the pupil's parents. Is there not any communication between school and pupil when the pupil has left the school grounds? Will contact between school and parents remain restricted to the familiar ten-minute meetings on their children's grades? Has the Internet revolution led to new ways of communicating for the school and the community, or has nothing really changed? Do schools take advantage of all new options and opportunities? What are the needs on the part of the children, parents and teaching in all this? These are all questions that have inspired the study that we report on here.

Obviously, all schools wish to communicate with their pupil's parents and they mostly do so by organising information meetings as well as parent-teacher meetings. When a pupil is registered with a school there is usually a more extensive intake session, but unless there are concerns the communication quickly tapers off after that. Some schools publish a newsletter to inform parents on matters such as the school's organisation or important events, and they compile and distribute a school guide each year. The increasing importance of the Internet for the communication between people cannot be ignored by schools, and more and more schools have their own website and teachers can be contacted by e-mail. However, this is generally still limited to exchanging the most essential information that also is made available in newsletters, information meetings and parent-teacher meetings. The question remains whether the possibilities offered by the Internet are use to best advantage.

Take for instance the fact that communication through the Internet takes less time and energy and can take place at any moment. The exchange of information is easy and can also be better geared to individual requirements. The Internet also allows a quicker response in case of unforeseen events, and the information is therefore always up-to-date and accessible. School only employ these advantages to a very limited extent, for instance by using e-mail or a website to inform pupils and their parents on changes in the class schedule, on classes that are cancelled and on activities that are being organised. This mainly applies to secondary education, because classes are not usually cancelled in primary education.

The situation in the Netherlands may well be characterised by the statement that schools use the Internet mainly to provide information and that they do so in a single direction: from the school to the parents. It is the school that determines what information is distributed and when. E-mail can sometimes be used if the parents have a question of wish to inform the school of something, but usually they will also have to follow up with a visit to the school to discuss the issue.

It seems strange, especially nowadays, that the communication between school and parents is restricted like this. It a general opinion that schools should not only guide

children and teenagers into our culture and support them in acquiring the necessary knowledge and skills, but that they should also play a part in the upbringing of children. Children spend more and more time at school and in after school care and the borders between family and society are becoming more diffuse. Care for the development of children then becomes a shared responsibility of parents and teachers.

This could mean that both parties will also have to communicate more with each other on this shared assignment. The Internet offers the facilities to properly implement that communication, not just in one direction (from school to parents) but also in the other (from parents to school). The Internet also solves the issue that parents are not always available due to work or other obligations. The question is if the communication should be limited to the exchange of information. Parents could be involved more closely in many ways in the development of their children during the time that they are at school. The specific knowledge and experience of the parents can be put to use through the Internet by making this valuable knowledge accessible to more pupils without making many demands on the parent's limited time. Examples are a we*blog* or the possibility of putting forward questions on the Internet to parents that have an expertise in a certain field. In this manner the school can draw in knowledge that is available outside the school walls and the parents can be involved more closely in their children's learning process.

Also, the Internet could play a part in supporting the learning process of pupils when they are not physically at school. At present pupils receive instruction and support during the hours that they spend in school but they have to figure things out for themselves when they are at home. Not all pupils manage to do that. Parents cannot always provide support because they may lack the required information. A school could therefore make use of the Internet to make the learning materials accessible to pupils and parents whenever they need them. This could involve instructions, descriptions of assignments and additional information on the subjects.

The school might even organise support by offering pupils the possibility of asking questions on a website or by organising online discussion with pupils on a specific topic. Obviously, this will require time and investments and it will have to be fitted into the possibilities and time available to the teachers. However, it will contribute to increased fun and motivation in pupils, to a more intensive involvement for parents and to improved grades. These benefits are all meaningful to all parties involved.

It is also clear that communication can turn into undesired meddling, and that the boundaries need to be defined regarding privacy and the right to self-determination. One might wonder whether it desirable for instance to offer parents the opportunity to observe their child in class through a webcam.

Another far-reaching application is found in the United States[37] where some high schools have adopted a system that informs the parents on the calorie intake of their children during their day at school. Every purchase is paid for using a school card and the amount of calories in each beverage or food item is registered. With this remote application parents can monitor the eating habits of their children in their battle against obesity. This crosses a boundary and shows a low level of trust between these parents and their children.

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[37] eSchool News Staff [2005]. *Parents count kid's calories online*. eSchool News online, July 1; http://www.eschoolnews.com

There are also some appealing examples in which schools use the Internet to improve the connection between the school and the community. There are schools that closely involve parents and others in the community in shaping the curriculum[38] to bring learning inside and outside the school more in line. In short, there are plenty of opportunities. But what exactly do we already do and what do we think we need? These are the most important questions in this study and they have resulted in a number of surprising observations, which we present in this report.

The study

Pupils, their parents and teachers of a number of primary and secondary schools were asked questions about their experiences and opinions in order to unearth how schools use the Internet in their communication with pupils and parents at home, and to discover how pupils, parents and teachers would like schools to use it. The primary school pupils were seven to twelve years old, precisely the group that has already come into contact with the Internet at home. We very much liked to hear from them if they also are open to the possibilities that the Internet has to offer regarding their activities at school.

The parents were asked whether they see opportunities for schools to use the Internet to inform them better and to involve them more closely with their children's school. Obviously we also wanted to find out if the school sees any opportunities for using the Internet in the future to strengthen their relationship with parents and pupils. The same holds for the pupils, parents and teachers at the secondary schools in the study. We also wanted to know the opinion of school administrators and ICT staff, if present.

Who took part in the study?

The following schools took part in the study into the use of ICT in the communication between schools and the home:

o *Public primary school De Vlier*, a school in Breda which highly values its communication with the parents and strives to provide a secure environment for the pupils' development. The school has 15 computers that are shared by the pupils. The school has a website on which parents can find information on different subjects.

o *Public primary school Burgemeester Verschoor*, a village school in Sleeuwijk that has combined classes due to the small number of pupils. The school has 18 computers for its pupils. The school has a website with information for the parents which is also of interest to pupils because it has links to website that may be of interest to them.

o *Protestant primary school Prinses Beatrix*, a school in Rotterdam. The school has a website on which parents can find information on subjects such as parent involvement, after school care and the newsletter, but which also gauges parent satisfaction. Pupils can find information there on holidays, the hours of swimming and physical education classes, information on assignments, links to useful website and school photographs.

o *Municipal comprehensive school Prisma College Graaf Engelbrecht*, a comprehensive school in Breda offering VMBO/TL (preparatory vocation education, theoretical curriculum), HAVO (advanced secondary education) and VWO (pre-university education). The school has a website that has

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[38] Ascione, L. [2006]. *District taps community in school reform; Kentucky's Fayette County turns to stakeholders to redesign education*. eSchool News online, January 18; http://www.eschoolnews.com

information on the school and any new arrangements for parents and also provides information for pupils, such as up-to-date news, class schedules, study guides, a school calendar and useful links.

- o *Protestant comprehensive school Altena College*, a school in Sleeuwijk of protestant denomination that strives to be a working and living community based on biblical values. The school offers programmes for VMBO, HAVO and VWO. The school has 160 computers available on a total of 1200 pupils. The school has a website with mostly information for parents on the school guide and the curriculum. The website also provides useful links for pupils.

How was the study conducted?
The pupils were asked for their opinion in a group interview, as this provides better insight into their thoughts and desires as well as their motives and objections. This approach also prevents that a question is misunderstood. The parents were asked to fill in a questionnaire at home. It was considered impractical to organise meetings to interview parents on this subject. The questionnaires were distributed by teachers to their pupils. The pupils took them home and then brought them back to school. Not all parents filled out the questionnaire, which is usual in these kinds of study.

Teachers were also asked to fill in a questionnaire because interviews would take too much time and would not fit in with the design of the study. Administrators and ICT staff, if present, were interviewed personally on the subject. All school were first approached by email to ask if they were willing to participate. This was followed by meetings to discuss the implementation. The study revolved around the following questions and topics:

- o How is the Internet currently used in the communication between the school and the home?
- o Which needs do pupils, parents and school experience with respect to the communication?
- o How willing are the pupils, parents and school to enable that communication?
- o What applications could be implemented in the school in the short or longer term?

A distinction was made between different kinds of communication: information exchange (grades, organisational issues, and announcements on arrangements, schedules and calling in sick), support (help and guidance in the learning process, advice to parents and perhaps even courses for parents) and collaboration (active parent participation in learning process by providing knowledge on 'we*blogs*', answering questions from pupils or leading a discussion that takes place on the Internet).

What are the results of the study among parents?

We first describe the results of the questionnaires that were presented to the parents of pupils in primary and secondary school. Overall 45 parents from pupils in the three primary schools and 21 parents from the secondary schools took part in the study.

Primary schools
Over 80% of the parents of pupils in primary school has an Internet connection at home and over half of them show a relatively intensive level of use (over three hours a week). Almost 85% of the parents uses e-mail. It must be noted that over half of the

parents has completed vocational education and less than 20% has a degree from a university of applied sciences or a university.

What do parents think about the communication with the school?
It is striking that a relatively small group of parents (13%) indicate that they are not satisfied about the communication with the school, whereas over three quarters of them indicate that they would like to receive more information about their child's achievements and school activities. It is also striking that almost 90% of the parents indicate that they would like to have additional contacts with the school, next to the meetings they have at present, in order to obtain answers to questions that arise in-between meetings. Over three quarters of the parents would like to know what exactly their children learn at school and what they are engaged in during class. One might conclude that there is something strange in the fact that parents are still happy with the existing levels of communication with the school.

What do parents think about the possibilities for ICT?
Responding to the question of what possibilities ICT has to offer over 75% to 90% of the parents say they think that the learning process of their child could be supported and strengthened by e-mail contact between teachers and pupils, posting additional exercises and model solutions on the school's website, offering course materials and additional sources and organising online forums for discussion. Over three quarters of the parents are also positive on the use of ICT in the communication between them and the school. They mention e-mail contact between them and the teacher, and being able to download newsletters and the assignments handed in by their children. Over 65% of the parents also indicate that they wish to view the learning materials for their children on a website and would like to make use of a facility such as Frequently Asked Questions (FAQ).

What are parents themselves prepared to do for school?
It is remarkable that over 70% of the parents indicate that they feel no inclination to offer their own knowledge to the school in order to actively contribute to the learning process. The parents who are willing to contribute to the learning process see possibilities in e-mail, we*blogs* and participation in an online forum for discussion.

The secondary schools
All parents who participated have an Internet connection at home. Over 85% of them use it more than three hours a week. Over half have completed a vocational education and almost 40% have a degree from a university of applied science or a university. All parents use e-mail.

What do parents think about the communication with the school?
Over 80% of the parents rated the communication with the school as sufficient. 20% are not satisfied. In response to the need for communication, over three quarters indicate that they would like information on their children's' learning results and on activities that are being organised. It is striking that all parents feel a need to be able to ask teachers and the school questions at other times than the regular meetings at school. Over 70% would like more information about the subjects that their children take and over half of them would like to be able to see the course materials.

What do parents think about the possibilities for ICT?
In response to the question of what possibilities ICT has to offer 100% of the parents indicate they are convinced that putting up exercises and model solutions on the website would have a beneficial effect in addition to a section with Frequently Asked Questions (FAQ). Three quarters of the parents think that contact by e-mail between teacher and pupil is important and that posting learning materials on the website is

helpful. Over half think that a forum for discussion would be useful for the learning process.

It is remarkable that all parents are open to the use of ICT in their communication with school. They primarily mention e-mail contact between them and teachers as well as newsletters. Three quarters of the parents would also like to view learning materials and would like to be able to download the assignments handed in by their children. Over 70% would like to take advantage of a Frequently Asked Questions (FAQ) section.

What are parents themselves prepared to do for school?
It is rather disappointing that parents indicate that they are not inclined to engage in the transfer of knowledge to pupils and do not wish to contribute actively to the learning process. The parents' views may stem from the assumption that active participation in the learning process will take up too much time. It is also possible that these views are based on the knowledge that their children would not like them to, as has become clear from the interviews with the pupils.

What are the results of the study among teachers?
We will now turn to the results of the questionnaires that were presented to the teachers in both the primary and secondary schools. Overall eleven teachers from the primary schools and five teachers from the secondary school have participated in the study.

The primary schools
All primary schools in this study use educational software and they use the Internet to retrieve information. The schools also use ICT in administration and to register data on pupils.

What do teachers think about their communication with parents?
All teachers highly value the contact with parents and all schools communicate with parents through report meetings, newsletters and school guides. Two out of three schools organise teacher-parent evenings and use a website to communicate with parents. One school also organises walk-in sessions. Only one quarter of the teachers communicate with the parents through e-mail. All teachers consider the school's communication with the parents sufficient.

What do teachers think about the possibilities for ICT?
Over 90% of the teachers are open to the use of Internet in the communication with the parents; less than 10% state that they are against it because some parents do not have Internet access at home. Over 90% of the teachers are willing to contribute to digital newsletters and over 60% are willing to put assignments up on a website as a way of informing the parents. Over a quarter of the teachers are agreeable to contributing to answering Frequently Asked Questions (FAQ) and to using e-mail to inform parents and answer their questions. Less than a quarter have a favourable view on putting up learning materials and less than 10% are willing to contribute to a forum for discussion or any other way of using ICT in the communication with parents.

It is striking that over 60% of the teachers are unwilling to use ICT for the communication with pupils because of they feel they lack knowledge in that field. Where they do see possibilities they prefer putting up assignments. Only a third of them have a favourable opinion of putting up exercises and model solutions, and over a quarter are willing to put up learning materials. Less than 20% see advantages in using e-mail or a forum for discussion in their contact with pupils.

The secondary schools

A total of five teachers responded to the questionnaire, a very small sample. This means that the results must be interpreted as an indication, and subsequent studies are required to support our interpretations of the results.

What do teachers think about the communication with parents?

It is striking that all teachers think that the communication with the parents is sufficient. One might conclude that no action is therefore necessary in this area. On the other hand it was concluded previously that parents would like to be able to communicate more with teachers.

What do teachers think about the possibilities for ICT?

Four of the five teachers are positive on the possibilities of using ICT for communication with parents. They mostly mention putting up pupils' learning materials on a website, disseminating information in digital newsletters and making submitted assignments available on a website. Only one teacher sees the added value of e-mail. This might be explained by the fact that it allows the asking of questions and reduces the teacher's control of the process. A fear for time-consuming e-mail exchanges with parents might be cause. Posting materials on a website is preferred, as well as a fixed schedule for sending out newsletters.

On the other hand, the teachers are unanimous in their favourable opinion of the possibilities of ICT in their communication with pupils. Again this involves putting up course materials and assignments on a website. Only one teacher is willing to participate in an online forum for discussion. This is quite remarkable, as several studies have shown that this can be a very effective means to reinforce the learning process. Again one might suppose that teachers only support the use of ICT if they can keep total control of the moment as well as the content of the communication. Teachers are extremely reluctant as soon as the required amount of time becomes unpredictable, as is the case with answering questions from pupils.

What are the results of the interviews with pupils?

The interview focused on the need that pupils feel for communication with school when they are at home, and on their opinions of the communication between school and their parents. These two aspects were our primary interest.

What do pupils in primary school think about the use of ICT?

About two thirds of the pupils in primary school would like their parents to know more about the school and about what they are engaged in there. They provide the following explanations:

- o *I'd like it if my parents could see what I'm doing at school*
- o *I'd like it if my parents knew more about the school because that's where I am all day*
- o *I like it when my parents hear that I'm doing well in school*

A third of the pupils object or have no opinions. The reasons given by the opponents are:

- o *I don't like people talking about me without me knowing*
- o *I don't want my parents to hear that I'm not always doing so well in school*

About two thirds of the pupils also indicate that they would like to be able to download learning materials at home, though one school is an exception. A majority of the pupils in that school indicate that they do not want to download learning materials at home. The reasons mentioned by the pupils who are positive about downloading are:

- o *I like working for school on the computer at home*
- o *I like to continue working on my assignments at home*
- o *I like to show my parents what I've produced at school*

Reasons for being less positive are a preference for other activities than homework.

Three quarters responded in the negative on the question if they would like their parents to be able to download the assignments that they hand in. They would much rather like to decide that by themselves. Three quarters of the pupils also state that they would not like their parents to be actively involved in school, for instance by putting up messages on the website. The most important reasons are that they would be embarrassed or are afraid that the other pupils would make fun of them.

What do pupils in secondary school think about the use of ICT?
The majority of the pupils in the two secondary schools would like to have more opportunities to download materials at home, such as learning materials, exercises and the answers to tests. The percentages vary between the schools, ranging from 60% to 100%. The reasons provided include:

- o *I can complete more exercises if I can download the course materials at home*
- o *If I get to see the correct answers to the questions, then I can estimate my grade for the test.*

The pupils that are not in favour give reasons such as rather engaging in other activities in their spare time.

The secondary school pupils are less than enthusiastic on the subject of a forum for discussion; no-one gave a positive response. The pupils who do not support a discussion forum provided the following explanations:

- o *Those discussions are never serious and they can drag on for ages*
- o *I really think it's a waste of my time. I'd rather do something else.*

About half are positive on e-mail contact with teachers on the course subjects, for the following reasons:

- o *I'll get an answer much faster than if I have to wait till the next class to ask my question*
- o *I'd like to be able to submit assignments by email.*

Pupils that do not have a positive opinion on e-mail contact with teachers provide reasons such as:

- o *I'd rather ask my teachers in person.*
- o *Teachers don't answer their e-mail anyway, so it's pointless.*

A large majority of the pupils oppose a closer involvement of parents in education or have grave doubts about the matter. They certainly do not want their parents to become active in school through the Internet. Their reasons are:

- o *I don't want my parents getting involved in what happens at school*
- o *I'd die of embarrassment if my parents did that.*

What are the result of the interview with the school administrator?
The interview with the school administrator (and/or ICT staff) focused on the role of ICT in school and the vision for the future with respect to the communication between pupils and parents. Two of the three primary schools participated in this part of the study.

What do administrators of primary schools think about the use of ICT?
Neither of the schools is at present engaged in finding out from the parents whether they are satisfied about the communication with the school. Neither of the schools offers pupils the possibility of downloading materials from a website, but this will be possible in the future at one of the schools.

What do administrators of secondary schools think about the use of ICT?
The secondary schools are not undertaking any study either into the parents' satisfaction on the communication with the school. At one school there are plans to develop more possibilities for pupils to download materials. Teachers at the other school use e-mail for assignments and model solutions. Both schools are investing mainly in computers for pupils inside the school. One school even indicates that the ideal would be for each pupil to have his or her own computer.

What are the most important findings of this study?

Firstly we must observe that on the whole parents, school and pupils are reasonably satisfied about their communication, although pupils and parents indicate that it could be more and ICT could certainly play a part in that. The most important means mentioned in this context are an interactive website that provides all kinds of downloads and a proper use of e-mail in the personal contact with teachers and mentors. The schools are less positive on extending their communication using ICT, which is probably due to the fact that teachers and administrators fear an increase in the teachers' workload.

Teachers generally feel there is already sufficient communication with parents, however there are quite a few parents that would like more communication with school at other moments than those in a fixed schedule. The use of ICT seems an obvious solution. It should not require much more time from the teacher and will not necessarily lead to an increase in communication, but it will make the communication more flexible. Parents will then receive the required information at the required moment. Obviously this demands more flexibility from the teachers. They will have to be willing to communicate with the parents at other times that those included in the schedules.

Pupils and parents see opportunities for using ICT to improve the communication of information on important issues that are school related, specifically improving the download facilities of the website and specific use of e-mail. Parents and pupils also believe that the learning process can be stimulated with the proper use of ICT in guidance and support. This also includes the availability of all materials, sources,

exercises and example solutions on the website and the possibility to ask teachers questions through e-mail. Teachers are very reluctant in this matter, partly because they fear an increased workload and because they do not feel sufficiently competent in the use of ICT.

It is noteworthy that pupils wish to decide for themselves what parents can and cannot see. The parents are of a somewhat different opinion. The use of ICT provides opportunities for pupils to work on school assignments by themselves when they are at home, but pupils feel this should not lead to their parents involving themselves without being asked. This is a difficult issue, especially because parents and teachers face the shared task of creating the best possible conditions for the pupils' development. Specific attention is required for the way in which the communication between school and parents is implemented, as it is preferable that pupils have as much responsibility as possible for their own learning processes. This implies that there should not be secret exchanges between the school and the parents and that all communication takes place in the open. Pupils are equal participants in the process.

The most striking finding of this study is that parents are hardly willing to make their expertise available for education in their children's school. This is particularly noteworthy because to do so would stimulate their involvement in their children's development and provide opportunities to enrich their education. Using ICT means that parents can be more than a 'reading Mum', 'handcraft Dad' or supervisor at school trips. making their knowledge available without even having to go the school.

The schools do not favour these opportunities either. That may be explained from the fact that the teachers may find it difficult to organise and may also feel slightly threatened by intensive parent involvement in the curriculum.

Pupils are almost unanimously opposed against parent involvement in the learning process. It makes them feel embarrassed or they are afraid that they may be ridiculed by other pupils. Peer pressure is clearly a factor here which should not be underestimated. It is clear that young people develop their identity based on social interaction with others in their age group. Their peers are much more important to them than their parents in finding and developing their own identity, especially during secondary school. Too much parent involvement could disrupt this process. It is therefore necessary that involving the parents in the learning process is handled with the utmost care and consideration. School is not only about the acquisition of knowledge. Pupils also acquire social skills and develop their personality in the interaction with their peers, and the latter sometimes outweighs the first.

With respect to ICT schools are still in the phase that most emphasis is put on acquiring computers for the school and using ICT for information provisioning and administration. The focus on buying computers is especially remarkable, because in many cases it is not yet clear how these are going to be used in the learning process. They are used for a large number of assignments and for individual exercises with educational software, but the schools have not yet really considered the possibilities of ICT in the field of communication and the opportunities presented by the Internet. This means that opportunities for supporting the pupil in the learning process outside school are insufficiently exploited and that opportunities to link learning inside the school more closely to learning outside the school are not seized.

This is of course a long-term process, but it will have to start with developing a vision of the use of ICT in the learning process and the steps that need to be taken to achieve that vision in the long term. This means that teachers should also share this

vision and that training will be required to overcome their objections against using ICT.

It seems a matter of course that extending the communication between the school and the parents and pupils at home involves the school's website. Further development of the website is the first step in that process and is a project in itself. Below we list some tips for the school and the parents (and possibly the pupils) if they are willing to put in an effort[39]:

- o **Know your target audience**, in other words: ensure that you find out exactly what parents and pupils expect from a website and what they demand from it.

- o **Keep navigation simple**, in other words: ensure that everyone can easily find their way in all menus on the website and that it is immediately obvious where to find something.

- o **Less is usually more**, in other words: keep content concise and to the point; and do not publish everything that was ever written on the subject on the website. Make well-considered choices.

- o **Divide the work** and do not only involve teachers, in other words: designing en implementing a good-quality interactive website is a time-consuming task that requires a group of people who feel responsible, including parents.

- o **Appoint one qualified webmaster**, in other words: administrators, teachers, parents and pupils could all be part of a team, but final responsibility must lie in the hands of a single person who publishes the content and monitors that the website's standards regarding content and design are followed.

Developing an interactive website also provides opportunities to bring teachers, pupils and parents together within a single project. A central editorial board and a single webmaster who takes final responsibility will stop everyone from using their own approach and will prevent the resulting website from being confusing to the users. This also offer opportunities for implementing parent involvement without the risk of pupils feeling embarrassed, and for stimulating pupils' contributions. The website can grow to become a valuable meeting place for all who are involved in the school.

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[39] Carr, N. [2000]. *Tips for forging stronger home-school connections*. eSchool News online, February 1; www.eschoolnews.com

8. Parents and the digital world of teenagers

Parents usually want to know what their son or daughter is really doing on the Internet and whether or not it could be harmful. This is understandable as well as sensible because the outside world enters the home through websites. Unfortunately there is no fit-for-all piece of advice on what to do. This is partly so because the issue involves educating children and partly as a result of a generation gap.

With respect to educating children parents will attempt to maintain a relation of trust with their son or daughter and they will gradually allow them more independence and responsibility during the process of growing up. This also applies to the time and energy that children spend on the computer and the Internet. Parents will have to find the proper balance. This means giving the child sufficient room to establish themselves and develop in the virtual world. On the other hand they should really try hard to gain insight into the possibilities and potential threats that are inherent in the virtual world.

When the children are still small it may be useful to put the computer in the sitting room for instance and to join in by looking for attractive sites together. Other ways to keep informed on what happens will be required as the children grow up and manage their own computer. Obviously simply banning the use of the computer is not a solution. It is much better to engage in a dialogue as much as possible and discuss what they like so much about the Internet and what is new. Parents could ask to be included on the *buddy list* or list of contacts.

This still leaves the generation gap, which can be put at about sixteen years of age. Everyone older, however skilled they may be on the computer and the Internet, is clearly of a different generation. It is not feasible to attempt to completely close the gap, but it is wise to build a few bridges that allow parents to learn and experience how their children live and work on the other side.

A few tips

- Visit a *chatsite* yourself (MSN for instance: http://msn.com) and have a look around. Then start up MSN Messenger (download it for free if it is not on the computer).

- Visit a *profilesite* as well, such as *Sugababes* (www.sugababes.nl) and *CU2* (www.cu2.nl).

- See what your child is doing from the moment that he or she takes the first steps on the Internet. Maintain a positive attitude to make sure that your child will turn to you when something goes wrong. Keep the computer in the sitting room for the first few years.

- Do not forget to talk about all the nice, useful and entertaining aspects of the Internet. This will make it easier to also discuss the bad aspects of the Internet.

- Get to know their online friends, just as you get to know their other friends.

- Tell your son or daughter that almost one in six children disclose their age, e-mail address, picture, home address or password to anyone (including strangers) without asking questions. Boys do this more rashly than girls, but it happens to both. Make them aware of the potential risks and dangers that such carelessness can entail. Teach them that creating a temporary address

in MSN Hotmail or mail.yahoo.com may be a solution if it is really necessary to provide an e-mail address.

- o Safety tips and advice on privacy could be read together, for instance on http://www.msnbc.msn.com/id/11030746/.

- o Be careful with webcams. Check that they are turned off, or at least not directed at people, when they are no longer needed.

- o Strangers can only get on an MSN *buddy list* if they are added by the child through carelessness. Children must be taught to be careful when adding names to the *buddy list*.

- o It is wise to point out that information on the Internet is not checked for truth or reliability and that it must be handled with care. Teach your children to be discerning users.

- o Try to explain that the physical separation on the Internet may make it easier to insult or bully someone but that such abuse hits people harder and has a more lasting effect, especially when other reinforce it. That obviously also applies to pictures and images that should not have been brought into the open.

9. Teachers and the digital world of teenagers

The children currently attending primary school and lower grades of secondary school are actively participating in the digital world. What does this mean for the teachers? Can the knowledge and skills that children develop in that environment be used in education? Are teachers also partially responsible for the advancement of their pupils in the digital world and for helping them to avoid risks and careless acts? What kind of ICT skills do teachers need? What part does ICT play in the education that they provide?

We will first turn to that last question. We find that all kinds of schools involve ICT in the educational practice, although in different ways and in some schools more than others. It is remarkable that the awareness that ICT must play a part in education is motivated by two approaches that are diametrically opposed[40]:

- o Either the essence of education is barely changed and ICT is used only 'on the surface' replacing pen and paper by a digital 'pen and paper';

- o Or the entire method of education is structurally redesigned based on the position that the beneficial possibilities of ICT can very well be used in all kinds of circumstances, for instance for improving communication and collaboration.

In other words, in the first case you might use mobile phones in class because everyone has one, and in the second case you might use mobile phones because you consider them to be the ideal tool in teaching the children.

Obviously, the latter approach seems the only correct one, as the most important aspect is the content that is being taught and how that content is taught comes second. This approach prevents schools from investing in computers, Internet facilities, software and digital content only because they have a the general notion that ICT is important. These investments in ICT are subsequently hardly or not at all used because the teachers do not fully support it. Teachers themselves must embrace the necessity of changing education. They may currently be unhappy with a form of education that is too much characterised by limited active involvement and enthusiasm from pupils, by too much emphasis on reproducing knowledge, by a straight-jacket curriculum, by a heavy focus on tests and by a being removed too far from the reality of society.

Studies show[41] that a teacher who uses ICT in an innovative manner in education is endowed with 'personal entrepreneurial spirit'. It is important that this teacher collaborates with his colleagues who are also using ICT, and that his communicative and collaborative skills are well developed. He should be capable himself of organising the support that he needs regarding didactic or technical problems.

The part of the school administrator is also very important. The Dutch 'Inspectie van het Onderwijs'[42] (Inspectorate of Education in the Netherlands) describes that inspiring school administrators aspire to more that just replacing the existing means and methods by new ones that embody ICT. They are focused on a fundamental re-think of the aim, content, approach and benefits of education. To them ICT is one of the means to try out the new ways of learning and teaching. These often allow pupils to work more independently and also allow them to contribute in designing the shape

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[40] Brummelhuis, A. ten (2006), *Aansluiting onderwijs en digitale generatie,* in: *Jaarboek ICT en samenleving, p.125-141*
[41] Drent, M. (2006), *In transitie: op weg naar innovatief ICT-gebruik op de PABO*
[42] Schoolleiders on line, Inspirerende praktijkvoorbeelden (2005)

of the learning process. School administrators point out that they learned a crucial lesson in that that changes in educational processes occur at their own rate. One shouldn't try to change too much or too quickly. This process takes time but in itself it is an essential step on the road to innovation, for both school manager and teacher.

Whatever approach a school will take to put ICT to use in education, the question remains what the teacher should do with respect to the digital world of his pupils. In general the same things hold for teachers as for parents with respect to their knowledge of the digital world. The teacher will have venture out onto the Internet to see and experience what it means to chat, to design his homepage on a profilesite and to play a game that is popular among teenagers. Not only does personal experience teach what it is all about, but it also increases the respect he as a teacher and a discussion partner is given by his pupils when he talks about issues in the digital world or gives advice. It also makes the teacher understand better what his pupils find attractive and entertaining in the digital world.

This results in the following tips:

- o Make clear what the Internet is, many pupils have no idea or the wrong idea. Do not forget to mention fun, useful and entertaining aspects of the Internet. This will make it easier to discuss the bad aspects of the Internet such as cyber bullying.

- o Studies show that many teenagers would like more information on practical matters such as designing websites and editing pictures.

- o Explain that everyone should use the Internet and why. Children who do not have the possibility of using the Internet at home may deserve special attention and may have to be given the facilities to 'join in' with the others at school. A general ban on the use of the Internet is wrong and useless.

- o Visit a *chatsite* yourself (for instance MSN: http://msn.com) and have a look around. Also go and visit a *profilesite* as well, such as *Sugababes* (www.sugababes.nl) and *CU2* (www.cu2.nl) and try everything out. Ask what games are popular among the pupils and ask if you can watch them play.

- o Embrace the Internet as a useful, informative and fascinating instrument to learn and to enrich education. It is important that pupils understand that this is how you feel. By the way, studies also show that more than half of the pupils admit that their homework suffers sometimes from too much Internet use. A good subject for discussion.

- o Be careful around strangers. The Internet has its own 'etiquette' for interacting with strangers. Be polite but on guard and teach pupils that anonymity is the right thing in many cases.

- o Have the children set up their own charter for the Internet. Ask them to agree on rules of conduct. For instance with respect to hacking, calling names, sending viruses, gossiping and bullying.

- o Help pupils understand the consequences of bullying on the Internet. Many young people do not know what the effects are of ridiculing someone on the Internet. It may seem to be a game but it is deadly serious.

- Explicitly invite pupils to notify a teacher whom they trust whenever they encounter instances of cyber bullying or feel uncomfortable about something that has happened to them on the Internet.

- Involve parents and colleagues in your Internet policy. Inform them on the way in which you approach Internet use by pupils and how you solve problems.

- Be clear on which Internet sites should not be visited and why. Pupils should know that the Internet has the same things to offer as the outside world, including materials that are intended only for adults, or that are illegal or criminal or that are generally reprehensible because they are rooted in hate, such as racism and terrorism. Also indicate the difference between computer use at school and at home. Especially younger children should be restricted more. Make sure that assignments are specific.

- The installation of security or filtering software on schools is only a partial solution. It may provide a safer Internet environment at school, but it also puts instilling awareness and Internet education fully in the hands of the parents, whereas the school also has a responsibility. Monitoring, raising awareness and talking about the dangers on the Internet is a matter of both school and parents. Children really want to get support, help and guidance. Teach them to be responsible in their actions.

A next step could be to actively involve the school in the digital world with the intention of learning from it. The Onderwijsinspectie[43] (Inspectorate of Education in the Netherlands) provides a good example: two primary schools in Cothen and Houten arranged that pupils in groups 7 and 8 got in touch with each other on MSN. The pupils were asked to create a 'passport' of their MSN buddy. After some time the two groups of pupils met face to face. It quickly became clear that the pupils had no idea who they had been chatting with and had been completely fooled by some who pretended to be someone else. Thomas turned out to be Nelleke! The pupils then created a new passport for their buddies as they talked to each other. Afterwards the groups of pupils discussed their experiences at their own school, they drew up an Internet charter and they created a presentation on the MSN sessions and their meeting with the pupils in the other school. A project that teaches valuable lessons.

Finally, try to put the skills and knowledge that pupils have acquired in their virtual world to better use. This is often advantageous for the school and for education and it almost always stimulates the pupils and teachers. Allow pupils that show an interest to collaborate in creating a challenging and rich electronic learning environment that they feel a part of. Involve other pupils in developing or implementing the school's website for the communication with the parents at home and the general community around the school. Discuss with groups of pupils how to teach specific subjects using multimedia tools and the Internet and ask them how they would approach it if they were the teacher. Provide them with the facilities to show what they mean when they come up with suggestions.

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[43] *Leerlingen: Boeit 't, nieuwe vormen van leren* (2006 Inspectie van het Onderwijs, Nederland), pp. 38 ev.

10.   Further information

A few websites

Fortunately an increasing amount of information is becoming available to help gain an overview of the digital world of teenagers. The links below are only a small selection of the websites that are worth a visit:

- o **INHOLLAND Centre for eLearning**: www.inholland.nl/elearning

For an important part this book is the result of studies that were undertaken by the Centre for eLearning of INHOLLAND University of Applied Sciences. The results of our studies can be found here, including last year's publication on the changing behaviour of teenagers online. Interested visitors can sign up for an electronic newsletter on the website to keep abreast of the findings of new studies.

- o **Kennisnet**: www.kennisnet.nl/ and
- o **Stichting ICT op School**: www.ictopschool.net

Stichting ICT op School (ICT at School Foundation) and *Stichting Kennisnet* (Knowledge Net Foundation) joined forces on 1 February 2006 in *Stichting Kennisnet ICT op School* (Knowledge Net ICT at School Foundation). The new organisation focuses on the one hand on providing services for ICT support (*Kennisnet*) and on the other hand on promoting shared interests in education (*ICT op School*). *ICT op School* engages in equipping and supporting schools in selecting ICT products and services, clarifying educational needs in the field of learning (innovation) using ICT aimed at collaboration, the exchange and development of knowledge, undertaking research and monitoring and analysing developments in education relating to ICT and promoting the communal interests in the field of ICT in education.

- o **Mijn Kind online**: www.mijnkindonline.nl

The website 'Mijn kind online' (My child online) supports parents in the use of Internet by their children but also provides helpful tips to teachers. 'Mijn Kind Online' is an initiative from Planet Internet. The website was developed in collaboration with *Ouders Online* (Parents online).

- o **Pestweb:** www.pestweb.nl

The site (bullyweb) provides an accessible overview of tips for the different groups involved. It includes tips for children in varying age groups, parents and teachers. It also has links to other relevant sites.

- o **Meldpunt Discriminatie Internet**: www.meldpunt.nl

The Meldpunt Discriminatie Internet (MDI, Complaints Bureau for Discrimination on the Internet) is committed to investigating complaints of discrimination based on religion, descent, sexual preference, gender, skin colour and/or age on the Internet. The MDI also undertakes action when necessary. The MDI is part of the Magenta Foundation. MDI mainly focuses on the Dutch part of the Internet.

- o **Media-educatie:** www.mediaeducatie.nl/

The project Platform Media Education started on 16 May 2000 with a subsidy from the Ministry of Education, Culture and Science. The primary aim of the Platform is to coordinate the content and activities of projects in the field of media education with an eye towards education. Everyone associated with an institution that is active in the field of media education can become a member of the Platform.

- o **Netkids: new media education:** http://netkids.bibliotheek.nl/

The *Virtuele Mediatheek* (Virtual Mediatheque) has developed the *Netkids* site to provide information on new media education to teachers, librarians and parents. The site comprises two main general sections ('software and children' and 'Internet and children') as well as separate sections with targeted information for teachers, librarians and parents.

- o **Ouders online**: http://www.ouders.nl/xdiv9906.htm

Ouders online (Parents online) claims to be the largest parent community in the Netherlands. It is intended for "parents (and parents to be) of babies up to adolescents".

- o **Cybercoaching**: www.cybercoaching.nl

It is possible to take a course in *Cybercoaching*. This course is part of the *Surf Op Safe* (Surf safe) campaign from the Ministry of Economic Affairs. 'Stichting De Kinderconsument' (The Child Consumer Foundation) organises the course.

- o **Volkskrantdossier**:
  www.volkskrant.nl/achtergrond/technologie/games_games_games/

An online file from newspaper 'De Volkskrant' that includes all kinds of news and knowledge items on games and game players, including the aspect of learning benefits.

- o **Marc Prensky website:** www.marcprensky.com/

Marc Prensky's website with information on games and learning.

- o **Game Learningnet:** www.gamelearning.net/

An entertaining website that is aimed at primary school. Written by a researcher, Jake, it includes tips and guidelines for teachers and pupils in developing educational games.

- o **Pan European Game:** www.pegi.info/pegi/index.do

The PEGI (Pan European Game Information) is a website for parents on games and the contents of games. It allows parents to check if a game is suitable for a child of a specific age. It is also useful for children.

Some publications

- Darling-Hammond, L. and J. Brandsford (2005), *Preparing teachers for a changing world*, San Francisco: Jossy Bass.
- Facer, K. & Williamson, B (2004). *Designing Educational Technologies with Users*. Futurelab Handbook (www.futurelab.org.uk/download/pdfs/research/handbooks/handbook_02.pdf)
- Facer, K. (2003). *Computer Games and Learning. Why do we think it's worth talking about computer games and learning in the same breath*? Futurelab Discussion Paper on Games (www.futurelab.org.uk/download/pdfs/research/disc_papers/Computer_Games_and_Learning_discpaper.pdf)
- Haan, J. de and Chr. 't Hof (2006), *Jaarboek ICT en Samenleving 2006, De Digitale generatie,* Amsterdam: Boom
- Kirrriemuir, J. & McFarlane, C. (2004). *Literature Review in Games and Learning*. Futurelab Report 8 (www.futurelab.org.uk/download/pdfs/research/lit_reviews/Games_Review1.pdf)
- *Leerlingen: Boeit 't, nieuwe vormen van leren*, Inspectie van het Onderwijs 2006.
- *Leraren: Klikt 't, professionaliseren voor een ict-praktijk,* Inspectie van het Onderwijs 2006.
- Pardoen, J. and R. Pijpers (2005), *Mijn kind Online, Hoe begeleid je je kind op Internet?* Amsterdam: Uitgeverij SWP.
- Sandford, R. & Williamson, B. (2005). *Games and Learning*. Futurelab Handbook on Games (www.futurelab.org.uk/download/pdfs/research/handbooks/games_and_learning.pdf)

The Internet and computers increasingly determine our daily lives. This goes for almost everyone in the Netherlands. Still, it is mostly teenagers who are well informed on how to use all the possibilities of new technologies. They are building a digital world of their own that parents usually know very little about. This booklet intends to inform teachers, parents and other interested parties on what teenagers are actually doing online and how important it is to keep abreast of the new developments that the Internet and computers bring into their world.

On the basis of research into these issues in the Netherlands and abroad we attempt to indicate what the digital world of teenagers looks like and how it differs from that of grown-ups. What do they do, exactly, and why? We also look into teenagers' ICT behaviour and into dangers and abuse of the Internet. Moreover we provide tips for parents and teachers on how to handle certain phenomena.