



Primary school children's safe and unsafe use of the Internet at home and at school: An exploratory study

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Abstract

In this study, 1700 primary school pupils (4th, 5th, and 6th grade) of 78 schools in Flanders and their headmasters were questioned about their use of the Internet and their perception and behaviour as to safe Internet use.

The results indicate that, next to the expected high level of Internet use at home, there is clear evidence of unsafe Internet use. Exploration of the data reveals that, of the currently taken specific interventions to promote safe Internet use and (un)safe Internet behaviour, only parent control seems to be significantly related to lower degrees of unsafe behaviour. No school-based interventions seem to be associated with the level of unsafe Internet use. The nature of current school-based interventions is discussed and considered to be less effective to expect an impact at the behavioural level. Next to implications for future research, recommendations to reorient school policies and action lines are presented.

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1. Introduction

The introduction of computers and the Internet at school and at home has raised issues about safety, privacy, abuse, etc. In this context, Iannotta (2001) uses the concept of “inappropriate materials” to refer to the large variety of e-content that is publicly

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available on the Internet. Building on a review of the literature, Bullen and Harré (2000, p. 13) categorized the threats to youngsters in five categories:

1. The nature of the Internet and the age level of the Internet users make it difficult to evaluate the information being presented.
2. The danger associated with giving out personal details or setting up personal meetings with individuals they met via the Internet.
3. The negative impact of exposure to unsolicited pornography.
4. The occurrence and subsequent impact of sexual solicitation.
5. The impact of anti-racist sites, hate sites, and threatening or harassing materials.

Different approaches have been adopted to react to the threatening nature of the Internet (see e.g., action lines of the Safer Internet Plus Programme, 2005–2008 and Thornburgh & Lin, 2002):

- Hotlines where people can report illegal content on Internet sites.
- The development of awareness programmes for teachers, parents, and children. A typical example is the CyberSafe Schools programme, launched in June 2004, focusing on Australian pupils and teachers (<http://www.netalert.net.au/01732-CyberSafe-Schools.asp>).
- The development of a preventative program for 8–14 year olds, given by expert psychologists, with the goal of developing critical skills and common sense when using the Internet. This programme is combined with a preventative program for parents. Action Innocence offers these preventative programmes to schools in several European countries, including Belgium (see www.actioninnocence.org).
- Technological developments that help to limit the amount of unwanted and harmful content that Internet users receive (content filter software, spam filters, and content rating).
- The development of codes of conduct fostering a self-regulatory approach to cope with unsafe Internet use. A significant event was the organisation of a “Safe Internet Day” in 2005 by 65 organisations in 30 countries across the world (see e.g., <http://www.safer-internet.net/>).

Action programmes in Europe have been supported in a significant way by the European Commission (see e.g., <http://www.saferinternet.org>) and resulted in the organisation of national nodes that implement legislation, and the action lines mentioned above at a national and regional level. At a much larger level, the UNESCO has gathered data in the context of the comprehensive programme “Innocence in Danger”. In this programme unsafe Internet use was positioned within the context of child abuse. Wishart, Dungworth, and Smith (2002) present a comprehensive and international overview of organisations, programmes, action lines, etc. that focus on the issue of Internet safety.

Little evaluative information is however available as to the impact of these interventions. Most studies focus on a description of the actual use of the Internet by youngsters (e.g., O’Connell, Price, & Barrow, 2004). In the current study, 1700 primary school pupils of 78 schools in Flanders and their headmasters were questioned about their use of the Internet and their perception and behaviour as to safety issues. In the first part of the article, we present an outline of recent research data about primary schools and safe Internet

use. In the next part, we present the design and results of the study. On the base of the discussion of the results we present conclusions about the responsibility of schools in view of safe Internet use.

2. Recent research data

2.1. Unsafe Internet use

Available empirical data about the – unsafe – Internet use of youngsters points in a convincing way to the need to set up action programmes as outlined above.

Research from the Internet Safety Group (ISG, 2001) in New Zealand, involving 347 girls between 11 and 19 years old, indicates that:

- 29% sent mail and 26% got in touch via phone calls with people they met via the Internet.
- 33.5% did personally get in touch with strangers they met via the Internet.
- 34.5% did not tell their parents about getting in touch with strangers via the Internet.
- 60% had used at least once the Internet in an unsafe way; i.e. passing on their name, address, phone number, or pictures.
- 75% of the girls indicate they are being controlled only occasionally by their parents as to their Internet usage and 37.5% reports never being controlled.
- 22.5% reports that they have felt threatened while using the Internet.

Research from the Cyberspace Research Unit in the UK studied the Internet use of primary school children (O'Connell et al., 2004). In this two-year study (2002–2003) the Internet behaviour of 1434 children between the age of 8 and 11 was studied. About 60% of these children were unaware of basic safety guidelines. The researchers also found out that unsafe behaviour increased as compared to 2002.

Researchers from the Computer Science and Telecommunications Board (Thornburgh & Lin, 2002) collected an impressive amount of “inappropriate materials” that was freely available on the Internet.

Finkelhor, Mitchell, and Wolak (2000) report that within a representative sample of 1501 US youngsters between 10 and 17 years old, 25% were being exposed to unwanted sexual material and about 19% of them were being sexually propositioned while being online. Consistent results were found in follow up studies (Mitchell, Finkelhor, & Wolak, 2001, 2003; Wolak, Mitchell, & Finkelhor, 2003).

Stahl and Fritz (2002) studied the Internet use of 322 seventh- through tenth-grade students. About 21% had ever visited a pornographic site. Up to 45% reported spending time at sites related to guns and explosives. Most respondents (74%) reported contact with a stranger via e-mail or chat rooms. And a high proportion (25%) acknowledged that they had shared information about themselves such as name, school, address, or phone number.

3. Schools and unsafe Internet use

Schools are considered as an important actor to counter the negative side-effects of Internet use. The research of the Internet Safety Group (ISG, 2001) points for example

that 84.5% of the girls in the study indicate that they are being controlled in school as to their Internet use. And the UK study of O'Connell et al. (2004) points out that schools are the most commonly reported source of Internet safety advice for children in 2003.

There is a variety of interventions that schools can do to promote safe Internet use. In the following paragraphs, an overview of these measures is presented. Further, we will look at empirical research that focuses on the impact of these school-based interventions before presenting the design and the results of the present study.

A large number of countries have taken legal measures to force schools to adopt a responsible approach towards Internet use. A typical and early example can be found in the USA (Sivin & Bialo, 1992) with the introduction of the Children's Internet Protection Act (CIPA) and the Neighborhood Children's Internet Protection Act (NCIPA). This legislation defines the rules for Internet use in schools and public libraries. The key element in the Children's Protection Act (ALA, 1997) is the obligation to elaborate an Internet Safety Policy. This has resulted in the definition and implementation of a School AUP (Acceptable Use Policy) in each individual school (see also <http://www.coedu.usf.edu/internetsafety/acceptab.htm>). The same approach has been adopted in UK-schools (see e.g., Becta, 2005).

In most countries, schools are not allowed to give free access to the Internet. They have to install filtering software. Greenfield et al. (2001) distinguish between *inclusion filtering* and *exclusion filtering*. The former presents a "white list" of websites that have been screened and are considered to be safe. The latter gives access to the open Internet but excludes access to sites containing unacceptable content. Additional solutions monitor the actual Internet use (auditing) and report the actual Internet site access of the user (logging).

A third approach focuses on the Internet competencies of the teachers. An early example of a list of teacher competencies that comprise issues about safe Internet use was developed in Texas (Teacher Technology Competency Committee, 1998). The UNESCO (2003) has for instance put forward a recommendation to include competencies with regard to Internet safety in all ICT teacher training programmes. In a number of national standards for teachers, the competencies comprise now issues related to the safe use of the Internet (e.g., UK).

In line with the former, also the curriculum standards for schools have been adapted to cover Internet safety issues. Worldwide, the national curricula have been updated. Hope (2002) analysed national curricula in view of this Internet safety issue and indicates that in a large number of cases, the safety-related standards are not (yet) an obligatory part of the national curriculum. He especially refers to the New Zealand situation. This is however also the case in Flanders, the Dutch-speaking part of Belgium, where since 2004 an ICT-curriculum has been put forward, but rather as a proposal and not as a formal part of the national curriculum.

Next, curriculum development is a commonly adopted approach to cope with Internet safety issues. A wide variety of curriculum materials is now available for parents, teachers, and children of different age levels. Crombie and Trinneer (2001) discuss the *Missing game* that was developed to help pupils of grade 6 and 7 to become aware of their risky online behaviour and safety-related attitudes. In the UK, the Department for Education and Skills (DfES) and BECTA have developed the Internet Proficiency Scheme. This scheme aims at the development of the safe use of the Internet and other communication technologies. The Scheme consists of an interactive website called *Cybercafe* for the pupils (http://gridclub.com/find_out_more.htm) and a resource package for the teachers.

In Belgium, as in France, Monaco, and Switzerland, schools can make an appeal to Action Innocence, a European Non Governmental association for the prevention program “Surf safe on the net”. Its goal is to develop the critical skills and common sense of young people while using the Internet and to teach them concrete skills for safe Internet use.

In Flanders, schools can also opt to use *Clicksafe*, a package developed in a close collaboration between the police, government authorities, the media, and Child Focus, the European organisation that deals with disappearance and/or sexual exploitation of children (www.childfocus.org). Comparable packages have been developed in New Zealand (see e.g., http://www.netsafe.org.nz/kids/kids_default.asp). A USA example is the Media Literacy Primer for parents and teachers (<http://www.ciconline.org/Enrichment/Media-Literacy/medialiteracy101/default.htm>).

Lastly, schools are also targeted by large scale initiatives that centre on safe Internet use from a society perspective. Schools – next to parents, cultural organisations, and children – can link up to national or regional websites that provide them with materials, information, background research, etc. A typical example is the Internet Safety Zone, set up by the UK’s Internet Safety Content Agent (<http://www.fkbko.co.uk/>). An Australian example is Netalert, set up by the Internet Safety Advisory Body (<http://www.netalert.net.au/>). In the USA, users can access GetNetWise via <http://kids.getnetwise.org/tools/>.

4. The impact of school-based and parents’ Internet safety interventions

Luna and Finkelhor (1998) analysed prevention campaigns in a variety of fields (e.g., alcohol abuse, traffic safety, school drop-out) and derived a list of characteristics of successful approaches. Intervention programmes tend to be more successful when:

- they are grounded in a theoretical framework;
- they focus on concrete skills development;
- they consist of different components that take into account different target audiences (e.g., parents, teachers, pupils);
- interactive instructional strategies are being applied;
- the approach considers the individual and/or small groups in the target audience;
- the training is implemented in a comprehensive way;
- the intervention exceeds about 20 h of involvement of the target audience.

The researchers did also identify characteristics of unsuccessful programmes. Initiatives tend to be less successful when they are limited to the transmission of knowledge, when fear is being induced, when the focus is limited to influencing attitudes and when the approach remains too general. A last recommendation stresses the importance to start intervention programmes at an early age (9–12) and to consider individual differences, such as gender.

There is only a limited amount of evaluative studies focusing on the impact of school based Internet safety interventions. Thornburgh and Lin (2002) analysed the available research literature and concludes that intervention programmes should:

- involve parents and their children to discuss inappropriate Internet content;
- focus on the development of alternative content for younger users of the Internet.

Research reveals that parents expect schools to play a central role in developing safe Internet behaviour in their children (see e.g., [Amarach Consulting, 2001](#); [Media Awareness Network, 2001](#); [NCTE, 2001](#)).

Research that focuses on the impact of supervision reports weak results. Parent supervision is hardly associated with a decline in viewing inappropriate content. In addition, [Thornburgh and Lin \(2002\)](#) report that it is difficult to determine to what extent being confronted with inappropriate content is harmful. They nevertheless warn about the impact of for example extreme violence and sexually loaded violence. In a large-scale American study involving 10 800 girls between 12 and 18 years old, [Berson, Berson, Ferron, and Aftab \(1999\)](#) and [Berson \(2000\)](#) found that Internet safety had been discussed in school and about 36% had discussed this with their classroom teacher. But the researchers found that – despite these measures – the participation in unsafe Internet use remained very large. They even state that youngsters consider unsafe Internet use as a normal part of their youth culture ([Berson, 2000, p. 158](#)). The need to focus on both children and parents has been confirmed in several studies.

Researchers also conclude that technical solutions to block inappropriate content are rather ineffective. The most effective filter software only block between 10% and 20% of the inappropriate content ([Digital Chaperones for Kids, 2001](#)). The studies of [Hunter \(2000\)](#) and [Mitchell et al. \(2003\)](#) report higher blocking results (10–30%), but the authors also conclude that the technical solutions are not the optimal way to avoid school children to get in touch with inappropriate Internet content. Australian research reports comparable results and questions the efficacy of filtering software ([Greenfield et al., 2001](#)).

In general, most studies centring on safe Internet use in school contexts present rather a descriptive picture of current practices, use of the Internet, types of use and quantitative data about unsafe Internet use by school children. There is a shortage of evaluative studies that centre on the relationship school-based measures and (un)safe Internet use.

5. Design and results of the study

5.1. Research design

5.1.1. Research questions

The present study centres on the following research questions:

1. What is the quantity and nature of Internet use of 4th, 5th, and 6th graders at home?
2. To what extent does the Internet use of 4th, 5th, and 6th graders reflect unsafe Internet use?
3. To what extent is there Internet use supervision at home?
4. Is there a relationship between the interventions at home and Internet use of 4th, 5th, and 6th graders at school?
5. What is the quantity of computer and Internet use of 4th, 5th, and 6th graders at school?
6. What types of safe Internet use interventions have been taken at school?
7. Is there a relationship between safe Internet use interventions at school and the occurrence of unsafe Internet use by 4th, 5th, and 6th graders?

5.1.2. *Sample*

In total, 1700 pupils of the 4th, 5th, and 6th grade of 78 schools in Flanders were involved in this study. On average, 21 pupils per school were interviewed. The schools were selected at random from a total of 2146 primary schools. In Flanders, primary education is subsidized by the government, but the initiative to organise primary education can be taken up by different instances: private organisations (church; 68.8–63.81), local authorities (province, city, town; 22.7–22.39%), or central government (8.5–13.75%). Between brackets we report the observed proportion in the sample and the expected proportion, based on the data of the school year 2004–2005. This implies that there is a slight under representation of primary education organised by the government and a slight overrepresentation of primary education organised by private organisations. This affects to a certain extent the representation of principals and pupils in the sample as compared to the population. When it comes to other background variables we focus on principals and pupils separately. The background characteristics of the principals in the sample are in line with population characteristics: gender (female 43.66%–male 56.34%), age (50 year, 1 month).

Within the research sample, nearly equal proportions of pupils were interviewed: 4th grade = 33.3%, 5th grade = 33.3% and 6th grade = 33.4%. The sample was representative when it comes to the variable gender: girls = 50.6% and boys = 49.4%. The average age of the pupils in the sample is 11 years and 15 days.

5.1.3. *Questionnaire*

The research instrument consisted of two sections: a pupils section and a school principal section.

The pupil questionnaire gathered background information of the pupils, information about the quantity and nature of their computer and Internet use at home and at school, the degree of computer and Internet supervision at home and at school, and information about their unsafe computer use.

The school principal was presented a questionnaire focusing on the quantity of computer use, the degree of computer and Internet supervision at school, the extent to which an introduction to safe Internet use had been given, and the extent to which a safe Internet use policy was established in the school. The school principal questionnaire was administered in view of the three different grades.

5.1.4. *Research procedure*

The study was set up in February–March 2005. Interviewers received a detailed protocol that defined the step-by-step approach to interview the primary school children. Informed consent was obtained of the legal guardian of the pupils through the school principal. Each individual child was interviewed outside the classroom (e.g., library or computer room). The first questions about background information were read together with the pupils and the interviewer helped the pupil to answer these questions. The remaining questions were answered individually by the pupil, without intervention of the interviewer. If the pupil was in doubt as to the way a question had to be answered, he/she could ask for help. In those cases, the interviewer paraphrased the question to give some additional support. The school principal filled out the specific version of the instrument during the sessions with the pupils.

6. Research results

6.1. What is the quantity and nature of Internet use of 4th, 5th, and 6th graders in primary schools?

95.7% report using the Internet and 62.9% of them report a daily use to three times a week. Most pupils (91.2%) report to have access to the Internet at home. In addition 31.7% reports to access the Internet when visiting friends; 11.2 % have access to the Internet in a library.

Table 1 presents the percentages of pupils reporting specific uses of the Internet at home ($N = 1700$). 54.9% report to use the Internet at home for school work. 59.30% of pupils report they use Internet to chat, of which up to 46.9% report that they chat daily or up to three times a week.

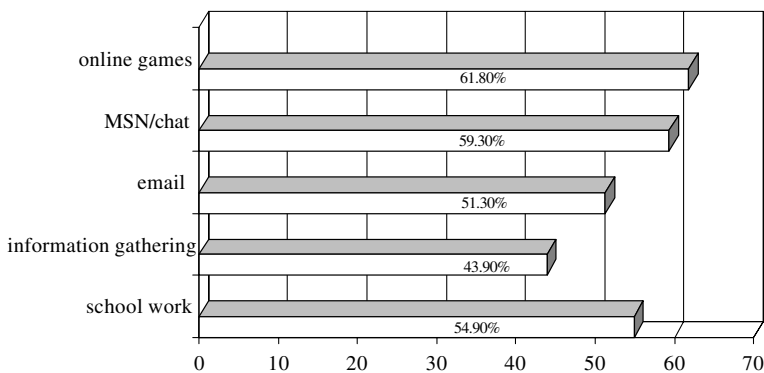
6.2. To what extent does the Internet use of 4th, 5th, and 6th graders reflect unsafe Internet use?

Nearly 26% of the pupils report that they do not always know who they chat with. About 13% of all pupils passed personal details and 12.7% sent pictures to people they chat with. Based on an appointment made via the Internet, 7.5% of the pupils met the stranger. Of this group 20.9% went alone to this meeting ($N = 58$).

When surfing on the Internet 40.7% have been shocked by inappropriate content (violence, sexual content, racial content) and 16.7% of the pupils have felt threatened while being online. There is a certain relationship with gender and grade level in this context. Girls felt significantly more threatened than boys ($\chi^2 = 11.94$, $p = .001$). Sixth and fifth graders have witnessed inappropriate content to a larger extent ($\chi^2 = 10.14$, $p = .005$).

An Unsafe Internet Use Index (UIUI) was calculated for each individual respondent by the summation of the six types of unsafe Internet behaviour. Only 13.7% of the pupils did not reflect unsafe Internet behaviour. Analysis of UIUI-levels does not reveal significant differences between the different age groups, boys and girls, or between pupils of different grades.

Table 1
Proportions of types of Internet use at home



6.3. To what extent is there Internet use supervision at home?

Of 1626 pupils who responded to this question, 52% reported that they did not or hardly ever experience being controlled when using the Internet at home. There is no significant difference between boys and girls, different age levels, or the different school grades. Only 18.8% report to be controlled always or nearly always.

6.4. Is there a relationship between the interventions at home and Internet use of 4th, 5th, and 6th graders at school?

Analysis of the impact of control by the parents results in the following picture. Pupils who report some level of control by the parents, more often know everybody online ($\chi^2 = 17.82$, $p = 0.001$) and pass personal details ($\chi^2 = 13.08$, $p = 0.011$) and pictures to unknown chat contacts to a lesser extent ($\chi^2 = 10.18$, $p = 0.037$) compared to pupils who report no control at all by the parents. There seems to be no relationship between parent control and actually meeting online contacts in real-life, going alone to this meeting, feeling shocked by Internet content, or feeling threatened.

6.5. What is the quantity of computer and Internet use of 4th, 5th and 6th graders at school?

Principals report a regular Internet use in grade 4–6 of their schools: in 66% of the schools, pupils use Internet weekly or more at school. In only 7% of the schools pupils only access the Internet once a month or less.

6.6. What types of safe Internet use measures have been taken at school?

The questionnaire contained an open-ended question about the different actions that had been taken to promote safe Internet use in the school and classrooms. All school principals replied to this question. It is however remarkable that all school-based interventions mentioned in the list remain restricted to policies, rules, regulations, setting restrictions to

Table 2
Proportions of three typical types of school-based interventions

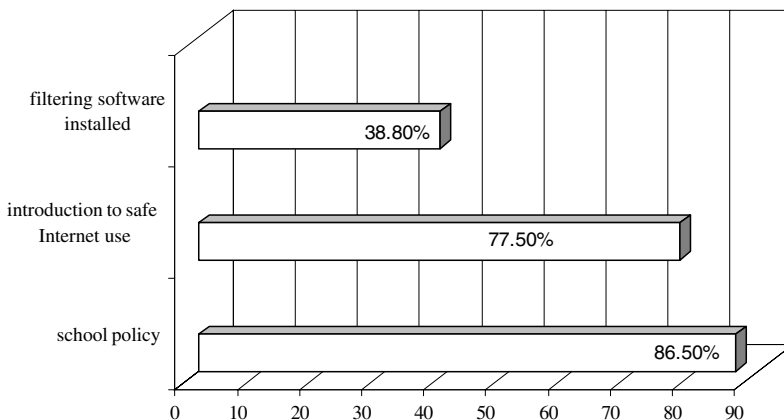
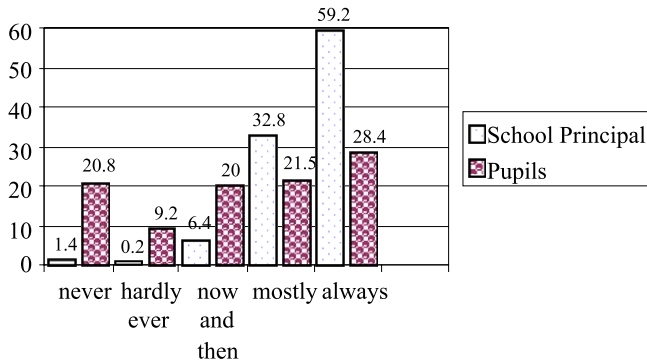


Table 3

Degree of control, as reported by school principals and as perceived by the pupils



the use of computers, controlling, monitoring, guided use, guided Internet tasks, social control, etc. Only one school principal mentioned a school-wide project that centred on safe Internet use. Table 2 summarizes the extent to which three typical school-based interventions have been taken.

In Table 3 we summarize the degree of control, but contrast this info with the control as it is experienced and reported by the pupils themselves. Although school principals of the 78 schools report high levels of monitoring and control of Internet use, there is a significant difference between their opinion and the way the pupils experience and report the degree of this type of control ($\chi^2 = 11883.24$, $p < .001$). Table 3 gives a graphical representation of these differences.

There is a statistically significant difference as to the level of control experienced by the pupils. Pupils of the third grade report to be controlled to a significantly lower degree than pupils of the 5th and 6th grade (Kruskal–Wallis $\chi^2 = 27.29$, $p < .001$).

6.7. Is there a relationship between safe Internet use measures at school and the occurrence of unsafe Internet use by 4th, 5th, and 6th graders?

The implementation of a school policy about safe Internet is significantly related to the level of teacher control as experienced by the pupils (Mann–Whitney $U = 237700.50$, $p < 0.01$). The same significant relationship is found between the implementation of a school policy and the level of teacher control as reported by the school principal (Mann–Whitney $U = 256280.00$, $p < 0.01$).

Being controlled by the teacher seems to be associated with a higher degree of knowing the people they meet online (Kruskal–Wallis $\chi^2 = 10.01$, $p = 0.04$). The other school-based interventions to cope with unsafe Internet behaviour are not significantly related with the actual Internet use as it has been reported by the pupils. Knowing everybody online, passing on personal details or pictures, and being shocked or threatened are not significantly related to e.g., the availability of a safe Internet school policy, classroom teacher explanations as to how to use the Internet, or classroom discussions about safe Internet use. None of the school-based measures predicts in a significant way the average Unsafe Internet Use Index (UIUI) of the pupils in the sample.

7. Discussion and conclusions

The results of this study are in line with findings of recent studies reporting high levels of home Internet use and high levels of chat use. In a study of Gross (2004), 261 seventh- and tenth-grade pupils were studied as to their Internet use. About 91% of pupils reported occasional or regular home Internet use. The most common Internet use was chatting and message board posting, demanding up to 54.1 min daily. Next, they spent daily on average 22.5 min visiting websites, while emailing consumed on average 22.2 min a day. Communication with strangers occurred but remained relatively infrequent. In their 2001 study, involving 40 376 sixth-, ninth-, and twelfth-grade pupils, Beebe, Asche, Patricia, Harrison, and Quinlan (2004) pointed at very high levels of chat use. Moreover, the study revealed that high levels of chat use were associated with psychological distress and a higher likelihood of risky behaviour.

The results of the study also indicate a high level of unsafe Internet use, such as chatting with unknown persons, sending personal information and photos, and by some children even meeting these persons whom they only know via the Internet. A high percentage of the pupils reports being chocked by material found on the Internet. These data suggests that there is definite need of appropriate prevention programs to inform children and teach them concrete Internet skills.

As to the importance of supervision by parents, there is clear evidence that parents have an impact on the safe Internet behaviour of their children. However, more than half of the pupils hardly ever experienced being controlled when using the Internet at home. It is important that all parents receive a full information on the dangers related to Internet use and tips on how to protect and guide their children.

As to the school-based interventions to support safe Internet use, the findings indicate that there is a general awareness to define and implement a school policy, and to inform pupils about (safe) Internet use. The findings however point out that there are no action lines that might guarantee the acquisition of specific knowledge and/or skills related to safe Internet use.

Based on the results of the present study, we were hardly able to detect significant relationships between school-based safe Internet interventions and the actual reported Internet behaviour of the 4th to 6th graders. Next to a number of methodological constraints of the present study that will be discussed in the next paragraphs, other variables can explain the results. The nature of the school-based interventions – as was already mentioned in the former paragraph – hardly influences the actual development of adequate knowledge about safe Internet behaviour and is not helpful to develop adequate safe Internet skills. As reported above, all school-based interventions were restricted to rules, regulations, policies, control, monitoring, etc., but did not include instructional strategies that implied active involvement of the pupils resulting in knowledge and skills acquisition. As stated earlier by Luna and Finkelhor (1998), this type of intervention programme is less likely to succeed.

Recently, Wishart, Oades, and Morris (2006) were able to report a positive impact of a school-based intervention. Their approach was based on a role play, called Net-Detectives. In this computer-based role play, pupils become detectives to investigate the misuse of the school computers. The results point at attitude changes and behavioural changes. In addition, they discussed their motivations and practiced the ICT skills in collaboration with other pupils. Also the examples of teaching and learning materials discussed at the start

of this article, might be more promising and effective means to actually influence and/or change the Internet use of pupils. Action Innocence reports that their interactive prevention program, that is given by outside experts, starts from children's experience, and teaches them specific skills to protect themselves on the Internet, has an impact on children's behaviour. The impact is reinforced if the children's parents are involved.

The study presented in this article reflects some methodological limitations. Firstly, the research data were derived from questionnaires. A richer data set could be based on actual observation of Internet use. The study of Wishart et al. (2006) combined questionnaires, phone interviews, classroom observations, and teacher focus groups. Next to pupils and school principals, also teachers and parents could have been involved. The information from parents might have been helpful to get a more concrete picture of concrete actions taken at home, their awareness about Internet safety, and their perceptions about computer and Internet use of their child(ren). The same applies to the involvement of teachers. Their information, perception, and awareness might have helped to corroborate the information obtained from both the principal and the pupils. Secondly, the design of the present study can be criticized. We did not study a particular intervention but explored the structure of data gathered in relation to (safe) Internet use and family and school-based measures. On the basis of the exploration of the relationships between these data, we are not able to study causal relationships and cannot come to conclusions about the impact of a safe Internet action line.

Despite these methodological constraints, the results of the present study call for additional research to study the impact of school-based interventions. From an educational policy perspective, the results point at the need for changes in giving directions to schools in view of adopting safe Internet use measures that build on a more active engagement of pupils in primary schools. The current state-of-the-art reflects that a general level of awareness has been attained, but that additional action lines have to be developed and implemented in Flemish primary schools.

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