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Abstract

This study investigates how teenagers use social networking sites (SNS) and other online communication applications, to what extent they are exposed to online contact risks related to the use of these online tools and how they cope with these risks. A written survey was administered among 815 Flemish adolescents aged 14–19. The study controls for sociodemographics and psychosocial factors, and it concludes that boys, pupils in technical or vocational education, adolescents living in lower SES families, teens with either low or high self-confidence and those having a bad relationship with their parents are more at-risk.

Keywords

adolescents, contact risks, internet use, online communication, social network sites

Introduction

The use of online social networking sites (SNS) has rapidly increased over the past six years. Recent European research shows that 72 percent of 13- to 14-year-old internet users have a profile on a social network. For 15- to 16-year-olds, this figure rises to 81 percent (Livingstone et al., 2010). In 2009, 73 percent of US 12- to 17-year-olds participated in online social networks (Pew Internet, 2010).

Online social networks are 'web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system; (2) articulate a list of other users with whom they share a connection; and (3) view and traverse their list of connections and those made by others within the system' (Boyd and Ellison, 2007). An important function of online social networks is affiliating oneself with a group, and strengthening or affirming these relationships in a public context (Ellison et al., 2007).

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Considering the popularity and the widespread use of online social networks throughout Europe, our study aims at getting a better picture of Flemish adolescents' uses of online social networks together with other online communication platforms and their related experiences in terms of online risks (Livingstone and Haddon, 2009).

Social networking sites: A source of risks but also of opportunities

Livingstone and Haddon (2009) describe three types of risks young people may be exposed to while using the internet: content risks, contact risks and conduct risks. In this article, we explore online risks such as disclosing personal information, cyberbullying, receiving sexual messages and online/offline contact with strangers. Most of these risks result from children's online interactions through SNS, chat boxes, instant messaging, email, webcams or online discussion boards, etc. However, risk should be distinguished from actual harm. Online communication activities can be labelled as risky as they sometimes result in being distressed, groomed, assaulted or harassed. The EU Kids Online research indicates that about 12 percent of children across Europe have experienced actual harm after exposure to online risks. Yet, some children and adolescents have more difficulties in coping with these online risks and preventing themselves from being harmed than others (Livingstone et al., 2010). Moreover, what is considered an online risk by adults is not necessarily perceived as a risk by adolescents (Livingstone and Helsper, 2007).

SNS are tools young people use to get in touch with peers sharing the same interests while facilitating opinion exchange and information sharing (Livingstone and Haddon, 2009). From this perspective, SNS can be regarded as an opportunity for adolescents' development of social capital, because they support community building, strengthen relationships with peers and help expand social contacts (Valkenburg et al., 2005). In terms of friendships, both the quantity and quality of friendships can be enhanced through SNS. Bridging social capital refers to the rather remote ties that can be reactivated creating a snowball effect: friends of friends can be added as contacts, resulting in a larger network (Ellison et al., 2007; Valkenburg et al., 2006). Also the quality of friendships can be strengthened because SNS enable the development of bonding and maintained social capital. Bonding capital refers to the often frequent and intimate communication within the circle of close friends and family. Maintained social capital is related to online contact with members of existing offline social networks such as (former) classmates or colleagues. Especially social capital for bridging purposes, i.e. involving weak connections between people, is built through SNS (Ellison et al., 2007; Greenhow and Robelia, 2009; Steinfield et al., 2008). Nevertheless, many adolescents predominantly use SNS to keep in touch with their offline friends. Especially when they have fewer opportunities to physically 'hang out' with their friends, they turn to SNS to spend time together. For many teenagers online and offline social networks highly overlap, resulting in similar communication patterns online and offline (Boyd, 2008; Livingstone and Brake, 2009).

As to privacy, research findings are not consistent. Many researchers worry about adolescents' lack of concern about their privacy settings on SNS. Recent studies show, however, that young people are more aware about their privacy and personal

information, although they might experience difficulties in understanding and adequately using the settings and assessing which contacts should have access to which personal information (Lewis et al., 2008; Livingstone, 2008).

Differences in use of online communication applications

Although online contact is a widespread phenomenon among young people, many differences persist as to how and how often adolescents use SNS and other applications for online communication. A binary definition in terms of users and non-users has proven to be a dead end. It makes much more sense to think in terms of a continuum from basic users up to more sophisticated ones; some young people only use a limited range of online applications, while others are capable of using a broad set of online tools in order to express themselves as active participants in society. Livingstone et al.'s (2005) 'ladder of online opportunities' represents this graduated sequence of activities from information consultation to interactive communication and gaming, and more creative uses. In this study, we focus on applications for (interactive) online communication. Text-based applications in a ready-made format such as email and instant messaging are on the second stage of the ladder of opportunities. More complex applications requiring more creativity and input from users such as blogging and participating in online discussions are on the fourth (and highest) stage of the ladder. Online social networks can be situated in between these two stages of online uses, offering a user-friendly format and interface that facilitate the sharing of experiences among online contacts (Livingstone et al., 2005).

Digital literacy is a key concept in this story because it necessarily mediates young people's online activities. Previous research shows that sociodemographic characteristics, psychosocial factors (e.g. individual factors such as self-confidence or social aspects such as relationship with parents) and circumstances affect the level of digital literacy (Broos and Roe, 2006; LaRose et al., 2001). Psychosocial factors refer to aspects on the individual (self-confidence) and social level (relationship with parents) that have an impact on the child's quality of life.

We define digital literacy as a concept with width and depth. On the one hand, we consider it a range of capacities an individual has acquired to use ICT in order to obtain knowledge and information, to critically evaluate it, to select relevant elements and to create new content. On the other hand, digital literacy also refers to the type of internet use: a more sophisticated use of online applications requiring content creation or active participation from its users indicates a higher level of digital literacy (Livingstone and Helsper, 2007). As to online contact, digital literacy refers to the ability to use a variety of applications and tools for online communication (email, chat applications, instant messages, SNS), and to accurately and critically process this information.

In terms of gender differences, research suggests that girls are more likely than boys to publish personal information, post photographs they have taken or publish self-made texts and poetry. However, they are less likely to publish videos on their homepages (Kalmus et al., 2009). Ofcom (2008) research in the UK indicates that SNS have higher social currency among girls than boys (aged 12–15). Girls are also more likely to have more than one profile page, to visit these sites several times a week and to have set access settings to 'friends only' (Peter et al., 2009).

Emotional problems and the quality of the connections with parents and peers also influence adolescents' patterns of online communication. Young people with low self-esteem and those who lack a good relationship with their parents seem to turn more often to the internet for intimate communication. They are also more often involved with contact risks, such as the disclosure of personal information to online contacts never met in real life (Valkenburg and Peter, 2007; Wells and Mitchell, 2008; Wolak et al., 2003). Moreover, youth with emotional problems or little self-confidence are more likely to feel actual harm such as emotional distress after a negative experience with online contacts (Ybarra and Mitchell, 2004). Sensation seeking is a personality trait that also influences young people's online behaviour. Those who engage in risky offline activities will be more likely to get involved in online risks (Bryant and Zillman, 2002; Livingstone and Helsper, 2007).

Household characteristics and family dynamics are important contextual factors. The parental level of digital inclusion has an impact on how children use online technologies. Lower-educated parents tend to have fewer digital skills themselves and are less involved in guiding their children's internet use (Notley, 2009).

Although some groups of young people tend to run into risky encounters more often than others, research shows that among all groups, online opportunities and risks are positively correlated to exposure. More frequent and broader internet use brings more online (contact) risks. If one aims to turn into a broad and skilled internet user, risk exposure seems to be inevitable (Livingstone and Helsper, 2007).

This study attempts to identify which groups of adolescents are more familiar with online social networks, and which groups experience more exposure to risks related to such online contact. The literature overview leads us to the following research questions:

RQ 1: What is the overall participation of Flemish youth (aged 14–19) in SNS? In what way do sociodemographic characteristics (gender, educational attainment, SES of the parents) and psychosocial factors (self-confidence and parental relationship) impact on their familiarity with SNS?

RQ 2: What risks do Flemish teenagers encounter when sharing experiences online? How do sociodemographic characteristics and psychosocial factors impact on participation and perception of online contact risks?

Method

Data collection and analysis

A written questionnaire was filled out by 815 Flemish young people in the third to sixth year of secondary school (14–19 year olds) in the spring of 2009 (February–April). Nine Flemish schools across different regions participated in the survey. Respondents were asked to fill out the survey in their classroom, under supervision of master's students assigned to collect the data. Our sample consisted of 50.1 percent boys and 49.9 percent girls with an average age of 16.6 years ($SD = 1.24$). Even though we aimed at a balanced sample in terms of the type of school young people attended, pupils enrolled in vocational

education (BSO) remained underrepresented. In the Flemish school population, 24.9 percent of pupils attend vocational education (Departement Onderwijs & Vorming, 2008), while in our sample this group amounts to 12.9 percent only. We now briefly describe the concepts taken into account in this research.

Independent variables

Sociodemographics. We investigate whether gender, age, educational attainment and socioeconomic status of the parents impact on adolescents' participation in online social networks and their exposure to online contact risks. In Flanders, high school takes six years; three levels of education can be distinguished: general education (ASO), technical education (TSO) and vocational education (BSO). To determine the socioeconomic level of the parents, both their educational level (junior high school or less, high school, higher education) and their current profession were taken into account.

Psychosocial factors. Both a good child–parent relationship characterized by open communication and having enough self-confidence influence adolescents' psychological well-being. We assume that adolescents who feel distressed or insecure are more likely to encounter online risks. The quality of the relationship with the parents is measured by asking the respondents how well they get along with their parents, whether they think their parents are honest with them and whether they often fight with them (Cronbach's $\alpha = .76$; five-point Likert scale from 'totally not agree' to 'totally agree'). Self-confidence is measured on a seven-item scale (Cronbach's $\alpha = .81$; five-point Likert scale from 'totally not agree' to 'totally agree').

Perception of risks and opportunities. What parents might consider a contact risk, might be perceived as an opportunity by adolescents. As to SNS risk perception, respondents were asked whether they worried a lot, a bit or not at all about 'receiving unwelcome messages from strangers', 'running greater risks of being cyberbullied' and 'running risks of spam or commercial misuse'. To measure SNS opportunity perceptions, respondents had to indicate to what extent (a lot, a bit, not at all) they considered 'expansion of their social network', 'learning about new things' and 'being fully oneself' as advantages of SNS.

Dependent variables

Participation in social networking sites. We measured participation in SNS by asking whether (1) they were registered on SNS and, if so, we asked them to select from a list of SNS on which one(s) they were registered; (2) frequency of using an SNS profile (five-point scale from 'less than once a week' to 'several times a day'); (3) frequency of updating an SNS profile (five-point scale from 'less than once a month' to 'several times a week'; (4) frequency of specific SNS activities (for sharing and collecting information, and for entertainment) (four-point scale from 'never' to 'often'). A general SNS participation score was calculated based on the standardized mean scores of these four variables. This led to three groups according to type of SNS involvement: 44.4 percent of the young people surveyed belonged to the group who strongly participates in social

networking sites; 40 percent of them show average participation; and only 16 percent are not or almost not involved in SNS ($M = 2.28$, $SD = .072$).

In order to find out why adolescents join online social networks, we suggested 10 motives for signing up and asked them to indicate for each motive whether it applied to them or not. Based on a first principal components analysis, we deleted three motives because they were not related to expectations people may have about SNS and did not load sufficiently on the factors ('friends recommended me to register', 'I received promotion emails' and 'people I know have a profile'). From a principal components analysis with the remaining seven items, two subscales emerged ($KMO > .5$; Bartlett's test $< .001$). People sign up for two clustered reasons: getting in touch with more people (to find classmates, to find people with the same interests, to get to know more people and to network in general) (Cronbach's alpha = .61), and for self-development (to promote myself, to find information for school, to find a date) (Cronbach's alpha = .62).

For those who have signed up on an SNS, we wanted to find out why they continue using their SNS. On a list of nine items, respondents had to indicate which reasons for using SNS were applicable to them. Based on a first principal components analysis, we deleted the item 'just for fun' because it loaded on both factors. A second PCA with the remaining eight items resulted in two dimensions ($KMO > .5$; Bartlett's test $< .001$): contact with people you know (Cronbach's alpha = .62) and contact with new people (Cronbach's alpha = .70).

Taking a closer look at the different applications SNS offer their subscribers, a principal components analysis with varimax rotation provides support for two underlying dimensions in our set of nine application variables ($KMO > .5$; Bartlett's test $< .001$). For each application, respondents could indicate whether they used it never, sometimes or often. The first set of applications is related to sharing and collecting information on SNS: looking at other people's profiles, leaving messages on a friend's profile, sending messages to all your friends at once, sending private messages to friends, uploading pictures and videos (Cronbach's alpha = .80). The second set of applications refers to entertainment on SNS: giving others virtual hugs, playing games and doing quizzes (Cronbach's alpha = .66). For each factor, the mean score was calculated to determine whether respondents use SNS for sharing and collecting information and for entertainment purposes never/rarely, sometimes or often.

Dependent variables: Online contact risks

Disclosure of personal information. Respondents were given a list of 12 types of personal data (first name, age, gender, phone number, etc.), and were asked to indicate whether they would give this information to a person they chat with for the first time (four-point scale from 'certainly not' to 'certainly yes'). A principal components analysis with varimax rotation was conducted ($KMO > .5$; Bartlett's test $> .001$), resulting in two different groups of personal data. The items 'last name', 'email address' and 'your picture' were deleted because they loaded on more than one factor. The factors were:

F1, general descriptive information: first name, age, gender, hobbies and school (not allowing immediate identification as such information is not unique) (Cronbach's $\alpha = .85$);

F2, contact and meeting information: home address, phone number (home), mobile number, video. These pieces of information allow specific and individual identification, hence such information is considered riskier (Cronbach's $\alpha = .75$).

Online contact with new people. In order to investigate whom young people have contact with, using online communication applications, they were first asked who they would add as 'friends' to their SNS profile. Five circles of closeness were presented: 'good friends from school', 'people I know from school', 'distant acquaintances', 'people I've never met in real life' and 'people I completely don't know' (four-point scale from 'certainly not' to 'certainly yes'). The respondents were also asked whether they know all their chat and email contacts personally (yes/no scale).

Sexual messages. Youngsters receiving sexually loaded messages or invitations provoke a great deal of preoccupation among parents and policy-makers. We asked respondents how often they received sexual messages while chatting ('never', 'less than once a month' and 'more than once a month').

Meeting new people offline. Organizing meetings with new friends is considered to be one of the most serious online contact risks because if the meeting turns out to be a negative experience, this can have a serious impact on the child's well-being. Respondents were asked whether they had ever met in person with an online contact ('yes', 'no', 'not applicable: I only chat with people I know'). Adolescents can cope differently with risks related to meeting an online contact. They can take preventive measures, such as informing their parents about the meeting or going accompanied to the meeting. If the meeting turns out to be a negative experience, they can decide to talk about it with someone or not. Our respondents were asked whether or not they had talked to someone about these meetings (dichotomous yes/no scale).

Cyberbullying. Respondents were asked whether or not they had been a victim of (1) bullying and (2) cyberbullying (four-point scales from 'never' to 'often'). In order to get a better insight into how cyberbullying occurs, more specific questions were included in the survey. These consisted of a list of six 'unpleasant' activities (e.g. send rude messages about someone to an online group or directly aimed at a person) about which they had to indicate whether they had ever experienced them, either as a bully, a victim or a witness. For each of these three roles, a principal components analysis with varimax rotation was conducted. For being a bully and being a witness, the six activities form one component (Cronbach's $\alpha = .79$ for 'bully' and $.87$ for 'witness'; $KMO > .5$; Bartlett's test $< .001$). For being a victim of cyberbullying, two components were found ($KMO > .5$; Bartlett's test $< .001$), namely 'receiving rude or painful messages' (Cronbach's $\alpha = .59$) and 'being ridiculed/others make a fool of me' (Cronbach's $\alpha = .59$).

Furthermore, the respondents were asked how they felt after having been confronted with cyberbullying, either as a bully, a witness or a victim (good, relieved,

bad or no feelings). In order to learn more about coping strategies related to cyberbullying, the victims were asked how they would react after being confronted with cyberbullying (don't go online for a while, react, don't do anything, block the person or do something else).

Results

Participation on social networking sites and sociodemographics

A large majority of Flemish adolescents are active SNS users, with 42 percent of them logging in at least once a day, 30 percent several times a week and 10 percent on a weekly basis. Previous research indicates that communication applications such as SNS are more popular among Flemish girls (Pauwels and Bauwens, 2008). Our results confirm this: Flemish girls use their SNS profile more intensively than boys ($\chi^2 = 10.33$; $df = 2$; $p < .01$). Not surprisingly, Netlog (67 percent), a Belgian social network site, is the most popular SNS among Flemish teenagers aged 14–19 years, followed by Facebook (52.7 percent), MySpace (22.8 percent) and Skyrock (19 percent). This ranking reappears when youngsters are asked whether they are aware of the existence of the different social networking sites in Flanders, but figures are far higher (97 percent for Netlog and Facebook, 88 percent for MySpace and 48 percent for Skyrock). Lack of knowledge about the existence of SNS can therefore be ruled out as a main reason for non-usage. Most adolescents who have no SNS profile say they are not interested in the phenomenon whatsoever (86 percent), do not know how it works (32 percent) or are worried about privacy and security matters (20 percent). Although 40 percent of Flemish adolescents check their SNS account at least once a day, the actual updating of their profile occurs far less frequently: only about 19 percent update their profile at least once a week.

Social networking sites are mainly used for sharing and collecting information: 38.3 percent of our respondents use this dimension often, 44 percent sometimes and only 17.7 percent are never involved in this kind of SNS activity. Sharing and collecting information is more popular among girls ($\chi^2 = 13.23$; $df = 2$; $p < .01$), pupils in vocational education ($\chi^2 = 11.26$; $df = 4$; $p < .05$) and children of middle and more highly educated parents ($\chi^2 = 10.02$; $df = 4$; $p < .05$). Entertainment-oriented activities are less popular: only 16.1 percent use them often, a quarter of our sample uses them sometimes, but the majority (58.9 percent) are not interested in this aspect of SNS. It is younger adolescents in particular (aged 14–15) who are more interested in using SNS for entertainment purposes ($F = 4.364$; $df = 2$; $p < .05$).

A vast majority (83.5 percent) of young people mention 'people I know have an SNS profile' as the most important motive for signing up for a social network. Among our respondents 62.5 percent acknowledge getting in touch with more people as a reason to sign up on a SNS. The motive is equally important to boys and girls. The higher the educational level of the respondents, the less an SNS profile is created for contacts with new people ($F = 5.044$; $df = 2$; $p < .01$). Only about one in eight (12.9 percent) agree or strongly agree with self-development as a motive for signing up. More boys ($\chi^2 = 14.11$; $df = 2$; $p < .01$), pupils in technical and vocational education ($\chi^2 = 27.39$; $df = 4$; $p < .001$) and children from lower-educated parents ($\chi^2 = 22.57$; $df = 4$; $p < .001$) sign up on a SNS for self-development purposes such as promoting oneself and finding a date.

Table 1. SNS participation and sociodemographics (in percentages)

	SNS participation			SNS sign up motives		SNS use motives		SNS applications	
	High	Med	Low	Getting in touch	Self-development	People they know	New people	Sharing & collecting information	Entertainment
Boys	38.8*	44.8*	16.4	62.7	16.5*	82.9*	63.3*	80.9*	41.4
Girls	49.4*	34.6*	16.0	61.0	8.7*	88.7*	51.9*	83.5*	40.4
14–15 years	50.8	34.7	14.7	65.8	14.7	86.7	64.9	82.1	49.4*
16–17 years	44.6	40.4	14.9	62.2	12.6	87.1	55.5	84.3	40.2*
18–19 years	37.5	42.0	20.5	57.0	11.3	80.7	55.5	76.7	36.1*
General education	44.5	39.2	16.3	56.1*	7.0*	86.6	52.4*	80.4*	40.0
Technical education	44.9	41.1	14.0	67.1*	18.2*	85.5	59.8*	83.1*	41.0
Vocational education	42.3	37.5	20.2	70.2*	20.2*	82.4	71.8*	87.2*	44.8
Parents: lower education	45.1	37.3	17.6	71.5	31.0*	88.7	65.9	68.2*	38.6
Parents: middle education	42.4	39.1	18.5	63.2	13.2*	87.1	56.9	83.3*	36.2
Parents: higher education	45.6	40.0	14.4	58.5	9.1*	85.4	55.5	82.6*	45.1
All	44.4	39.6	16.0	62.5	12.9	85.7	57.8	82.3	41.0

N = 815; sharing and collecting information and entertainment: percentage indicates involvement (sometimes or often); SNS sign up motives and SNS use motives: percentage refers to agreement (agree or strongly agree).An asterisk indicates a significant difference ($p < .05$).

The online social network is largely a reflection of the offline social network, and contact with people familiar to them is the most important SNS activity (see Table 1). Indeed, 85.7 percent agree or strongly agree that staying in contact with people one already knows is a reason for using SNS. Nevertheless, more than half (i.e. 57.8 percent) of the Flemish adolescents under study engage in contacts with new people, illustrating that online communication with strangers is by no means a marginal activity among teenagers. Online communication with people one knows is of greater importance for girls than boys ($\chi^2 = 18.38$; $df = 2$; $p < .001$). Boys stress getting to know new people as the main reason for SNS use. No significant relations were found between the SES of the parents (both level of education and profession) and teenagers' reasons to use SNS (contact with people they know or contact with new people).

Participation on SNS and psychosocial factors

Although adolescents with low self-confidence seem to be overrepresented among those who seldom use SNS, there are no significant differences in general SNS participation among teenagers with low, moderate or high self-confidence levels (see Table 2). The parental relationship appears to be a moderating factor in the participation of teenagers in social networking sites. A bad parental relationship makes teenagers get more involved in SNS ($\chi^2 = 11.05$; $df = 4$; $p < .05$). For teenagers having a good relationship with their parents, getting in touch with more people is a less important reason to sign up on SNS ($\chi^2 = 14.86$; $df = 4$; $p < .01$). As the relationship deteriorates, self-development becomes a more important motive for signing up ($\chi^2 = 20.50$; $df = 4$; $p < .001$). Having a good parental relationship makes having contact with new people on SNS less important for teenagers ($\chi^2 = 17.76$; $df = 4$; $p < .01$). Having contact with people they already know is equally important for teenagers, independent from their parental relationship.

Table 2. SNS participation and psychosocial factors (in percentages)

	SNS participation			SNS sign up motives		SNS use motives		SNS applications	
	High	Med	Low	Getting in touch	Self-development	Known people	New people	Sharing & collecting information	Entertainment
Below average self-confidence	41.7	52.8	5.6	55.9	26.5	78.8	63.6	85.3	39.4
Average self-confidence	44.7	38.6	16.7	61.0	11.1	86.5	57.0	81.6	41.3
Above average self-confidence	39.3	44.3	16.4	66.7	11.8	80.4	53.0	86.3	35.2
Bad relationship with parents	54.4*	33.3	12.1	69.5*	25.4*	79.6	71.2*	73.7*	41.6
Average relationship with parents	48.3*	37.8	13.9	66.1*	14.8*	86.5	62.4*	86.3*	42.1
Good relationship with parents	38.5*	42.6	19.0	55.6*	7.3*	86.3	49.5*	80.0*	39.7
All	44.4	39.6	16.0	62.5	12.9	85.7	57.8	82.3	41.0

$N = 815$; sharing and collecting information and entertainment: percentage indicates involvement (sometimes or often); SNS sign up motives and SNS use motives: percentage refers to agreement (agree or strongly agree). An asterisk indicates a significant difference ($p < .05$).

Online contact risks and sociodemographics

While chatting online with a first-time contact, 82.7 percent of Flemish adolescents would consider sharing *general descriptive information* such as first name, age, gender, hobbies or school (see Table 3). A whole different picture emerges as to their willingness to share *contact information* such as address, (mobile) number or video information. Half of them would under no circumstances reveal identity-specific information. Nevertheless, a small minority of about 4.5 percent would seriously consider doing so. Boys ($\chi^2 = 70.10$; $df = 2$; $p < .001$), young people enrolled in technical and vocational education ($\chi^2 = 12.48$; $df = 4$; $p < .05$) and children of lower-educated parents ($\chi^2 = 11.79$; $df = 4$; $p = .05$) are all more likely to share contact and meeting information with first-time contacts, which is the most risky kind of personal information.

Table 3. Online contact risks and sociodemographics (in percentages)

	Sharing general descriptive info.	Sharing contact & meeting info.	Online contact with complete strangers	Receiving sexual messages	Meeting new people offline	Cyberbullying (victim)
Boys	84.3	7.8*	19.8	34.2	34.3*	13.2*
Girls	82.0	1.3*	20.9	31.8	26.2*	16.8*
14–15 years	77.3*	4.5	29.1*	39.5	25.0*	15.3
16–17 years	84.3*	3.6	20.2*	29.9	28.5*	15.0
18–19 years	84.5*	6.9	11.6*	34.9	38.9*	15.3
General education	84.4	2.2*	16.9*	33.2	25.2*	13.2*
Technical education	82.4	5.9*	18.6*	33.0	32.1*	14.3*
Vocational education	77.7	8.8*	39.5*	31.0	42.7*	24.0*
Parents: lower education	66.7*	13.7*	28.9*	41.2*	39.2	25.5*
Parents: middle education	85.5*	3.3*	22.4*	34.1*	28.7	15.9*
Parents: higher education	82.3*	3.9*	16.0*	30.4*	28.9	12.5*
All	82.7	4.5	20.4	33.0	30.1	15.2

N = 815; sharing descriptive information and contact and meeting information: percentage indicates agreement (agree or strongly agree); online contact with complete strangers: percentage indicates those who are likely to add complete strangers to their list of SNS-friends; receiving sexual messages, meeting new people offline and victim of cyberbullying: percentage indicates those who have ever been involved in these activities. An asterisk indicates a significant difference ($p < .05$).

Thirty percent of the adolescents under study would only add people they know well as friends to their list of SNS-friends (see Table 4). About half are willing to share their SNS profile also with other vague contacts (e.g. friends of friends) and 20.2 percent have no problem adding complete strangers to their list of so-called SNS-‘friends’. When it comes to chat and email contacts, 47.9 percent of teenagers surveyed had added strangers to their list of chat buddies and 35.4 percent to their list of email contacts. About one-third maintains regular online contact (at least once a month) with those individuals they have never met in person. Clearly, for many adolescents online communication is a source for meeting new people.

Our results indicate that the on- and offline social networks are least congruent for younger male teenagers (14- to 15-year-olds), youth enrolled in vocational education and those with lower-educated parents. These groups are less critical towards adding strangers to their contact lists. Boys are less interested in adding people they personally know as friends to their SNS profile than girls ($\chi^2 = 8.07$; $df = 2$; $p < .05$). Respondents between 14 and 15 are more interested in expanding their online social network by adding people they know personally ($\chi^2 = 24.06$; $df = 4$; $p < .001$) as well as people they have not met in person ($\chi^2 = 20.59$; $df = 4$; $p < .001$). Youth with lower educational attainment or adolescents living in lower SES households mainly seem to be interested in establishing online contact with strangers; and they are less likely to add ‘offline’ friends to their SNS profile ($\chi^2 = 27.72$; $df = 4$; $p < .001$) ($\chi^2 = 31.42$; $df = 4$; $p < .001$).

Among our respondents, contact risks such as online sexual harassment and meeting strangers are well-known, recurring phenomena. One-third has already run into sexually related issues while chatting, and for 11.7 percent of the teenagers surveyed this happens more than once a month. Teenagers living in lower SES families ($\chi^2 = 13.26$; $df = 4$; $p < .05$) prove to be the group receiving most sexual messages while chatting.

Thirty percent already had a meeting with an online contact: these were mainly older adolescents (18- to 19-year-olds), boys ($\chi^2 = 10.28$; $df = 2$; $p < .01$) and school children with lower educational performance ($\chi^2 = 20.29$; $df = 4$; $p < .001$). Yet only a small minority (8 percent) experienced this as negative. As to coping strategies with regard to meeting with strangers, little more than half of the teenagers tell their parents about the meeting; 45 percent decide not to go unaccompanied. If the meeting turns out to be a negative experience, about 60 percent would talk to someone about this. Children of lower-educated parents experience this meeting more often as neutral or negative ($\chi^2 = 13.90$; $df = 4$; $p < .01$).

The use of communication tools (mainly through instant messaging and among classmates) to bully others is a well-known practice among 15- to 19-year-olds: 22.5 percent

Table 4. Adding people to one’s SNS contact list

Adding people to SNS	Frequency (%)
Only adding people you know well	202 (30.9%)
Only adding people you know at least vaguely	319 (48.9%)
Also adding people you haven’t met or don’t know	132 (20.2%)

N = 653.

admit cyberbullying, about 15 percent have even been a victim and almost half have witnessed acts of cyberbullying. Victims of cyberbullying also run a significantly higher risk of being victims of 'offline' bullying (Spearman's $\rho = .25$) as well as acting as 'offline' bullies themselves (Spearman's $\rho = .23$). Cyberbullying is a more recurrent practice among boys ($\chi^2 = 16.42$; $df = 1$; $p < .001$), adolescents enrolled in vocational education ($\chi^2 = 16.56$; $df = 2$; $p < .001$) and those with lower-educated parents ($\chi^2 = 17.36$; $df = 2$; $p < .001$). Since being a (cyber)bully and a (cyber)victim tend to highly correlate, adolescents in these three groups are also more often victims and witnesses of cyberbullying.

Cyberbullies have mixed feelings afterwards: about 20 percent claim to feel good, while about 27 percent feel bad, one out of three having no good or bad feelings at all. The witnesses generally feel either bad or indifferent. The majority of victims understandably feel bad, yet about 30 percent seem indifferent towards being a victim of cyberbullying. Either as a cyberbully or a witness thereof, boys and teenagers from lower-educated backgrounds more often feel indifferent or good afterwards, while other groups more often feel bad. As to coping strategies related to cyberbullying, about 60 percent of the victims talk to someone after having been bullied, mostly to their mother or a friend. The most popular self-regulating strategies are blocking the bully, and reacting by sending the bully a message back. The latter might explain the positive correlation between being a bully and being a victim of bullying. When girls are victims of cyberbullying, they more easily reach out to talk about the problem to an adult ($\chi^2 = 11.07$; $df = 1$; $p < .01$) or to peers ($\chi^2 = 5.55$, $df = 1$; $p < .05$). Youth from lower-educated households show more tendency to talk with an adult when they become the victim of cyberbullying ($\chi^2 = 8.66$; $df = 2$; $p < .05$).

Online contact risks and psychosocial factors

A bad parental relationship and a higher SNS opportunity perception enhance adolescents' tendencies to share contact and meeting information with unknown chat contacts ($\chi^2 = 17.24$; $df = 4$; $p < .01$) ($\chi^2 = 11.32$; $df = 4$; $p < .05$) (see Table 5). Their willingness to add both complete strangers ($\chi^2 = 24.81$; $df = 4$; $p < .001$) ($\chi^2 = 20.26$; $df = 4$; $p < .001$) and people they already know personally ($\chi^2 = 36.64$; $df = 4$; $p < .001$) ($\chi^2 = 11.40$; $df = 4$; $p < .05$) as friends to their SNS profile also increases. Contrary to the previous group, those who see few opportunities in SNS are rather reluctant to share general, descriptive information ($\chi^2 = 21.38$; $df = 4$; $p < .001$). A high self-confidence level enhances adolescents' behaviour to add already known offline contacts to their online SNS profile ($\chi^2 = 12.14$; $df = 4$; $p < .05$).

Receiving sexual questions while chatting seems to occur more frequently when one lacks self-confidence ($\chi^2 = 15.03$; $df = 4$; $p < .01$) and has a bad parental relationship ($\chi^2 = 44.86$; $df = 4$; $p < .001$). Organizing a meeting with a chat contact also occurs more often when adolescents have a bad parental relationship ($\chi^2 = 18.33$; $df = 4$; $p < .01$) and when they perceive SNS as a resourceful opportunity ($\chi^2 = 25.35$; $df = 4$; $p < .001$). Those who perceive SNS as resourceful tend more often to evaluate meetings with strangers positively ($\chi^2 = 9.57$; $df = 4$; $p < .05$). Adolescents with more self-confidence ($\chi^2 = 8.56$; $df = 2$; $p < .05$) and with a good parental relationship ($\chi^2 = 7.76$; $df = 2$; $p < .05$) will be more likely to inform their parents about a meeting with a chat contact.

Adolescents with normal/average self-confidence levels engage least in cyberbullying roles, while those with high self-confidence ($\chi^2 = 6.33$; $df = 2$; $p < .05$) and those

Table 5. Online contact risks and psychosocial factors (in percentages)

	Sharing general descriptive info.	Sharing contact & meeting info.	Online contact with new people	Receiving sexual messages	Meeting new people offline	Cyberbullying
Below average self-confidence	75.0	11.1	27.3	50.0*	27.8	22.2*
Average self-confidence	83.1	3.8	19.4	30.8*	29.2	14.2*
Above average self-confidence	83.7	8.2	21.1	34.4*	31.1	16.4*
Bad relationship with parents	75.0	11.1*	35.6*	56.9*	47.7*	23.9*
Average relationship with parents	80.5	4.7*	21.4*	31.3*	29.2*	16.5*
Good relationship with parents	86.5	3.0*	16.2*	28.9*	25.8*	11.5*
Low risk perception	80.0	6.7	22.1	34.1	35.7*	12.7*
Average risk perception	85.1	3.1	17.1	31.3	25.1*	15.3*
High risk perception	81.8	4.4	25.2	35.5	33.8*	20.1*
Low opportunity perception	74.9*	3.0*	15.0*	26.2	22.8*	15.5
Average opportunity perception	82.8*	5.2*	19.6*	32.5	27.9*	14.4
High opportunity perception	87.8*	4.8*	23.7*	37.6	37.4*	16.1
All	83.3	4.5	20.4	33.0	30.1	15.2

N = 815; sharing descriptive information and contact and meeting information: percentage indicates agreement (agree or strongly agree); online contact with complete strangers: percentage indicates those who are likely to add complete strangers to their list of SNS-friends; receiving sexual messages, meeting new people offline and victim of cyberbullying: percentage indicates those who have ever been involved in these activities. An asterisk indicates a significant difference ($p < .05$).

who value SNS highly ($\chi^2 = 9.53$; $df = 2$; $p < .01$) bully the most. Cyberbullying occurs a lot less among children who maintain a good relationship with their parents, either as a bully ($\chi^2 = 20.65$; $df = 2$; $p < .001$), or a victim receiving rude messages ($\chi^2 = 16.76$;

$df = 2; p < .001$) or as a witness of cyberbullying activities ($\chi^2 = 10.22; df = 2; p < .01$). As bullies, adolescents with high self-confidence more often feel indifferent, while young people with normal self-confidence more often feel bad, either as a cyberbully ($\chi^2 = 28.94; df = 6; p < .001$), or a witness ($\chi^2 = 24.35; df = 6; p < .001$) or a victim ($\chi^2 = 35.70; df = 6; p < .001$).

Conclusion and discussion

While climbing the ladder of opportunities, children and adolescents develop both reactive and preventive strategies that help them cope with risks related to online conduct and contact. How far up the ladder of online opportunities young people venture is dependent on personality traits as well as demographic characteristics. In general, children climb the online ladder as they get older, and this is not any different for Flemish young people. Our study, although relying on too small a group of young people enrolled in vocational education, proved useful in identifying groups of adolescents who engage more in risky online contacts than others. Using online social networks for meeting new people is mostly practised by boys, school children enrolled in technical or vocational education, adolescents with lower-educated parents and those suffering from a rather bad child–parent relationship. In addition, these adolescents are more likely to publish personal information such as contact information or location information, and to organize a meeting with someone they have met online. Moreover, they engage more in aggressive online activities such as cyberbullying. A high level of self-confidence seems to make adolescents more willing to share their SNS profiles with others. Teenagers with a normal self-confidence level engage less in cyberbullying. As to chatting about sex, lower education, lower SES of the parents, lower self-confidence as well as a bad relationship with the parents tend to increase the frequency of online conversations about sex.

Taking (online) risks is unmistakably linked to growing up, and running into (negative) experiences offers opportunities for learning. In any event one should avoid stirring up a panic. Moreover, what is considered a risk by parents can be experienced as a new opportunity by children (e.g. broadening one's horizons). Restricting young people's online communication may be a solution to decrease contact risks, but at the same time this approach prevents children from encountering online opportunities. Using preventive strategies includes having a critical attitude towards online contacts, reflecting about publishing personal information and learning to assess under what circumstances it is appropriate to send or upload personal information (Staksrud and Livingstone, 2009). In all, a far better option is to make young people aware of potential risks, not overestimating them, but teaching youngsters how to react properly when confronted with potential online risks such as being asked for personal information, or to meet in real life, or while being cyberbullied, etc.

Overall, we tend to have more insight into the disadvantages that internet brings to young people, and continue having little insight into the benefits that internet use can bring. In an effort to clarify some of these basic questions, future research should aim at longitudinal and multivariate analyses, taking into account the macro societal level, the meso family and school levels, as well as the micro level of the individual. Longitudinal research in which panels of young people are asked about the breadth and depth of online

opportunities now and later (for instance, every five years), about their achievements, opportunities and values in life as well as continuities with and discontinuities from their childhood socialization, would offer highly valuable insights into the potential explanatory value of their varying patterns of use of digital technologies in their childhood and adolescence. Finally, complementary to this quantitative research strand, we identify a lacuna of, and therefore a real need for more qualitative research contributions allowing young people to speak in their own voices. This will contribute to a better understanding of children's motives and their perspectives on risks and opportunities related to SNS use.

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