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Strategies and cues adolescents use to assess the age of an online stranger

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ABSTRACT

A common risk among adolescents is sexual solicitation, in which an adolescent is asked to provide sexual information, engage in sexual talk, or in sexual activities. Although scholars increasingly address this topic from an intrapersonal perspective, there is little attention to factors of language use and message content. In two focus group studies, we investigated whether adolescent girls consider themselves capable of assessing whether an online stranger is an adult or a peer, the extent to which adolescent girls actually succeed in making this assessment, the strategies they apply to do so, and the content- and language-related cues focused on. Our findings suggest that most of the adolescent girls are confident in their ability to assess whether the stranger is a peer or an adult with possible sexual intentions. However, we also found that only 43% were able to correctly make this assessment. Most of the adolescents seem to apply the passive strategy of uncertainty reduction: They scan the profile page of the stranger, check contact information, and the profile picture. They may choose to apply the interactive strategy to find out more about the online stranger. Important content-related cues that alarm adolescent girls are: ignoring personal questions, showing an exaggerated amount of interest, acting as a friend, and being sexually oriented. Language cues mentioned related to word usage, abbreviations, sentence length, and tone.

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Grooming; sexual solicitation; adolescents; safety; online; language; uncertainty

1. Introduction

The Internet has become an integral part of the lives of adolescents. Online communication offers them extensive opportunities in terms of schoolwork and information seeking, as well as games and friendship maintenance. However, the Internet also brings risks to which adolescents may be exposed (Beech, Elliot, Birgden, & Findlater, 2008; Bergen, 2014; Webster et al., 2012). A common risk is sexual solicitation, in which an adolescent is asked to provide sexual information, engage in sexual talk, or in sexual activities (Mitchell, Jones, Finkelhorn, & Wolak, 2014). In Europe, around 15% of adolescents indicated to have received a sexual message online (Livingstone, Haddon, Görzig, & Ólafsson, 2011).

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Valkenburg and Peter (2011) report that around 4% of adolescents report aggressive sexual solicitation. Sexual solicitation can result into online grooming which is defined as a process in which ‘a person prepares a child, significant adults and the environment for the abuse of this child’ (Whittle, Hamilton-Giachritsis, & Beech, 2015, p. 539). Nowadays, sex offenders use the Internet and especially social networking sites (SNSs) to access people for the purpose of sexual abuse (Beech et al., 2008; Choo, 2009; Webster et al., 2012; Wolak, Finkelhor, Mitchell, & Ybarra, 2008). Online groomers most often choose to target adolescents (Bergen, Antfolk, Jern, Alanko, & Santtila, 2013; Black, Wollis, Woodworth, & Hancock, 2015; Smith, Thompson, & Davidson, 2014; Whittle, Hamilton-Giachritsis, Beech, & Collings, 2013). When approaching a potential victim, groomers may adjust their identity online to present themselves in a positive way. The most used type of deception is changing the age (Bergen et al., 2014). Identity deception may be difficult to detect because of the lack of visual (and other identity confirming) cues online (Bergen et al., 2014).

In this contribution, we used a staged multi-method approach to better understand the manner in which adolescents behave when they are approached by a stranger online, and what cues they focus on when assessing the age of the stranger. First, we conducted a study to investigate whether adolescents consider themselves capable of assessing whether an online approach is made by a peer or an adult. Next, we conducted a second study to investigate whether adolescents are actually able to do so, and what strategies and content- and language-related cues they use in their assessment. We focused our studies on adolescent teenage girls, because they may be at a high risk of being targeted by online groomers (Bergen et al., 2013; Smith et al., 2014; Whittle et al., 2013). We propose the following research questions:

- (1) Do adolescent girls consider themselves capable of recognizing whether an online stranger is an adult or a peer? (Study 1)
- (2) To what extent do adolescent girls actually succeed in assessing whether an online stranger is an adult or a peer? (Study 2)
- (3) What strategies do adolescent girls apply online to make their assessments? (Study 2)
- (4) What content- and language-related cues do adolescent girls focus on to make their assessments? (Study 2)

2. Theoretical background

2.1. Online grooming

Grooming is not a new phenomenon; it has been occurring offline for a long time. The process of grooming contains six stages: selecting the victim, forming a friendship, forming a relationship, assessing the risk, exclusivity, and the sexual phase (O’Connell, 2003). Some researchers have identified three main themes within the grooming process: rapport building, sexual content, and assessment (Whittle et al., 2015). These stages appear to be non-sequential and can happen during any stage of the grooming process. The Internet offers groomers new possibilities and has changed the way they approach their victims (Black et al., 2015; Griffith & Roth, 2007). Groomers may lie about or at least adjust their identity online (Bergen, 2014; Webster et al., 2012; Wolak et al., 2008; Whittle,

Hamilton-Giachritsis, & Beech, 2014). It is estimated that between 20% and 50 of perpetrators use identity deception (Bergen et al., 2014; Briggs, Simon, & Simonsen, 2011; Malesky, 2007; Shannon, 2008; Wolak, Finkelhor, & Mitchell, 2004). Most common is adjusting the age (Bergen et al., 2014) because this may give adolescents more freedom to share sexual sensitive topics. Often perpetrators pretend to be younger than they are, but most do not pretend to be younger than 18 years old (Bergen et al., 2014; Briggs et al., 2011; Malesky, 2007; Shannon, 2008; Wolak et al., 2004). Besides age deception, groomers may use other strategies (e.g., using a picture of someone else and/or portraying to be more physically attractive), but in a less frequent manner (Quayle, Allegro, Hutton, Sheath, & Löf, 2012). Identity deception may be difficult to detect because of the lack of visual (and other identity confirming) cues online (Bergen et al., 2014).

Three different grooming strategies can be distinguished. The first is the *complimentary* strategy: Groomers try to flatter their target by providing compliments, for example, about clothing, appearance, and maturity. When groomers adopt the second strategy, named *mentor*, they take on the role of a 'substitute parent' who is always available for the target's problems and for conversation. The last strategy, *experience congruence*, occurs when groomers first approach adolescents who have some shared interests and then try to gain trust by discussing shared experiences. It can take months before the groomer actually makes an attempt to arrange a physical meeting (Choo, 2009; Whittle et al., 2014).

2.2. Verification of an online approach and uncertainty reduction

Despite the many risks, adolescents feel that they decide whether or not to share private information when participating in online conversations (Webster et al., 2012). They consider the Internet a low-risk environment and are inclined to try new intimate behaviors (e.g., exchanging romantic advice between two peers) which would be rare or difficult in a face-to-face conversation (Merchant, 2001). In addition, research indicates that young people often act impulsively or even naively online, often over-estimate their maturity or control in social situations, and are more prone to take risks (Bergen, 2014; Webster et al., 2012). Correspondingly, some online activities viewed as risky by adults are considered safe by adolescents (Bergen, 2014; Livingstone & Helsper, 2007). For example, in the Netherlands, 31% of children aged 13–16 years accepted friend requests from a stranger to find out who this person is (Livingstone, Ólafsson, & Staksrud, 2011). Reasons for this behavior could be the attractive appearance of the unknown person or an increased number of friends in their friend lists (Webster et al., 2012; Whittle et al., 2014).

Besides feeling in control about what to share and not to share online, control also means being able to recognize a groomer's approach and knowing how to act when such an approach occurs. This may not be as easy as adolescents might expect. Online, the lack of physical context and nonverbal cues may create uncertainty about unknown contacts (Gibbs, Ellison, & Lai, 2011). Uncertainty is a feeling that people perceive as unpleasant and, as a consequence, try to reduce (Berger & Calabrese, 1975). The uncertainty reduction theory (Berger & Calabrese, 1975) states that the initial interaction between two people who do not know each other is motivated by the goal of reducing this uncertainty. The reduction of uncertainty is usually done by gathering information about the other person. Then, one can better predict the attitude and behavior of the stranger. The theory argues that communication plays a key role in reducing uncertainty.

People generally use three strategies to verify information to reduce uncertainty about the other (Berger & Calabrese, 1975): In the passive strategy, one observes the stranger; in the active strategy, one asks others about the stranger; and in the interactive strategy, one communicates directly with the stranger to reduce uncertainty. The uncertainty reduction theory has proven to be applicable in online interactions between two people who meet online but who do not know each other in the offline world (Gibbs et al., 2011).

After contact is initiated, adolescents may take immediate action (e.g., blocking the stranger or ignoring requests) or they may perform risky behaviors (e.g., keeping phone numbers and chatting with someone until they get suspicious) (Bergen, 2014; Webster et al., 2012). Adolescents are generally quite certain of their own ability to identify the age of the person they are chatting with (Webster et al., 2012). Indicators for a stranger's age are the content of the conversation and the language used by the unknown person (Webster et al., 2012).

2.3. Content-related cues for identifying a stranger's age

There is some evidence that content-related cues play a role in detecting the age of an online stranger. For example, distrust might occur when the stranger keeps insisting on getting contact or mentions explicit sexual behaviors in the early stages of the conversation (Webster et al., 2012). Since online, it is easier to be anonymous and a perpetrator has a larger pool of potential victims to choose from, online conversations have the potential to become sexualized almost immediately (Smith et al., 2014). Groomers may use flattery, blackmail, threats, sexualized games, deception or bribery, intense contact, nastiness and erratic temperament, encouraged secrecy, and disproportionate focus on the young person's life during conversation and sexual elements (especially when instigated, persisted and controlled by another) (Whittle et al., 2014). Black et al. (2015) analyzed actual conversations between groomers and adolescents and concluded that at the start of most conversations, flattering the adolescent prevailed. Groomers used statements such as 'You are so pretty' and 'You must be so smart'. Despite these strategies, 'it cannot be overlooked that many of the grooming techniques identified and subsequent effects on the victims are typical of adolescent friendship/relationship development'. (Whittle et al., 2014, p. 421).

2.4. Language-related cues for identifying a stranger's age

Besides content cues, there are specific language cues that may alarm adolescents. Adolescents more or less write as they talk and they do not think much about the accuracy of keystrokes, spelling conventions, traditional punctuation, or grammatical completeness (Merchant, 2001). Online conversations changed the use of spelling, abbreviations, and slang. The use of 'u' instead of 'you' and 'i' instead of 'I' reduces time while typing and improves the speed of the interaction. Moreover, it is stated that this type and style of language might create a feeling of informality similar to a face-to-face conversation (Merchant, 2001). Therefore, interactions taking place in chat forums or SNSs can be viewed as rapid written conversations. Other examples are the change of abbreviations on a regular basis or the fast development of new abbreviations (Merchant, 2001). Abbreviations and other non-linguistic signs are indispensable to the vocabulary of adolescents when they interact with friends online (Choo, 2009). De Clercq, Desmet, Lfever, and Hoste (2013),

furthermore stated that the omission of words or characters, flooding (a repetition of the same character or sequence, such as 'baaaaaaby') and capitalizing letters (such as 'STUPID') is common.

Adolescents believe that the language they use online is distinct from the way adults engage in conversations (Webster et al., 2012). Consequently, adolescents indicate to verify if an unknown contact is a peer or an adult by the type and style of language applied (Webster et al., 2012). When the unknown person incorrectly uses acronyms, non-linguistic signs, or slang during the conversation, adolescents get suspicious. However, research has shown that groomers take initiative in learning more advanced skills regarding the language used by adolescents (Webster et al., 2012). When approaching a potential victim, the groomer tries to adjust his language so that it matches the language of the potential victim (Webster et al., 2012). To become more skilled in youth language, groomers observe adolescents and learn from friends or family members. As a result, they use acronyms and other non-linguistic signs such as emoticons to speed up the writing process, for sexual expressions and to control the interaction (Choo, 2009).

2.5. Summary

The main conclusion of this section is that adolescents do not consider themselves as particularly vulnerable online. Their feeling of being in control, however, might be a bit optimistic in the light of their behavior when approached by a stranger online. Study 1 investigated whether adolescents consider themselves capable of assessing whether an online approach is made by a peer or an adult: Do adolescent girls consider themselves capable of recognizing a groomer's approach online? The second study was conducted to check whether they are actually able to do so and to identify what strategies and content- and language-related cues they use in their assessment.

3. Study 1

3.1. Method

We investigated whether adolescent girls consider themselves capable of recognizing online approaches from groomers. We conducted 15 focus groups with a total of 102 adolescent girls. Adolescent girls were selected, because they have the highest risk of being targeted by online groomers (Bergen et al., 2013; Whittle et al., 2013).

3.1.1. Participants

Adolescent girls from four secondary schools in two Dutch cities participated (two schools per city). The schools were contacted by email and/or face-to-face. During initial contact, schools received an elaborate description of the aims and procedure of the research. Selection of participating adolescents differed per school. Two schools decided to select all students in several classes and two schools asked the researcher to enter the classroom and invite students who were willing to participate. In total, 15 focus groups were conducted; 8 with participants aged 12–13 years and 7 with participants aged 15–17 years. The number of participants in each focus group varied from 4 to 10 ($M = 6.8$; $SD = 2.0$).

3.1.2. Procedure

Secondary schools that agreed to participate received an email with an attached letter to the parents. This letter contained a description of the research and offered parents the option to refuse their child's participation. No parents refused. At every school, the contact person arranged a separate room for the focus groups to take place. Tables and chairs were present and as much as possible placed in a U shape. A video camera was present and was situated behind the researcher(s). Before the start of the actual discussion, participants were told the recordings were only used for transcription purposes and that data would be treated anonymously. They were asked for permission for the video recordings. One group refused video recordings but agreed on audio recordings. Each focus group lasted about 50–60 minutes.

During the sessions, participants were asked about their experiences with online strangers and the intentions of these strangers. They were asked how contact was initiated, and how they dealt with it. They were also asked about the perceived severity of the approach.

3.1.3. Data analysis

All group discussions were recorded for transcription afterwards. The video recordings were used to assist with the assignment of specific participants to the transcribed data. The coding scheme used was inductively derived from the focus group results and accounted for the following codes: experience (being contacted by online strangers), profile (characteristics of 'strange' unknown people), severity (perceived severity of the stranger's approach), annoyance (to what extent does the approach annoy them), unmasking (strategies applied to unmask possible groomers), and coping (strategies to deal with or defend themselves against groomers).

3.2. Results

The focus group results reveal that there is no real consensus among adolescents about the actual danger groomers pose to them. Almost all older participants (aged 15–16 years) claim to feel empowered enough to protect themselves, claim not to be afraid, and consider themselves capable of recognizing someone with wrong intentions. In fact, older adolescents do not seem to understand the warnings posed by adults concerning the threat of unknown online approaches. For example, one adolescent girl (aged 16 years) stated that 'as long as you do not react to someone, or plan no real-life meetings, nothing serious can happen'.

Younger adolescents (aged 12–13 years), however, seem to be a bit more concerned about unknown contacts, especially when they receive threatening messages or when the possibility emerges that the groomer might harm them in real life. One girl (aged 12 years) stated: 'For two weeks, I was really scared that he would come and get me'. Another (aged 13 years) said: 'Yeah, when something like that happens you just can't sleep, because you are thinking about it all the time'.

In many of the focus groups, the adolescent girls talked about the ways groomers behave and possible techniques to recognize a groomer. The techniques mentioned are listed in [Table 1](#).

[Table 1](#) shows that adolescent girls seem to be very creative when it comes to recognizing an older stranger. Most mentioned signals are suspicious content, conspicuous

Table 1. Alarm signals and techniques adolescent girls use to check an online stranger.

Signal	Technique	Mentioned in no. of groups?
Stranger's approach	Just the fact that an unknown person adds you to, for instance, Facebook creates suspicion. Most adolescents directly ask someone how they know them and why they should add them to their friend list.	15
Suspicious content	The other person makes sexual comments or gestures, gives a lot of compliments, or immediately asks for photos. Someone immediately wants to go to a private online environment or importunes by sending comments about photos, sending many chat messages, or friend requests (sometimes referred to as stalking). The other person uses a threatening tone or sends actual threats.	13
Stranger is from abroad	Friend requests appear to be from foreigners who speak English or use Google translate. Their goal, according to the girls, is to get married and move to the Netherlands.	9
Conspicuous picture	A picture is too good to be true or easily found on Tumblr. Strangers who have their real photo online, showing that they are actually much older. Other pictures on the profile reveal the actual age.	6
Friend network	Having a lot of friends, not having only teen girls as friends, and peers of the adolescent knowing the online stranger makes the stranger more reliable. Or girls check with friends if they know the unknown person.	6
Strange name	Having strange names like 'hotboy053' or 'f929'.	5
Suspicious language	Using much punctuation, a lack of connecting words, making longer sentences, using smileys or speaking a foreign language.	4
Sending webcam requests	Immediately sending webcam requests and when agreed on, showing genitalia in front of the webcam.	4
Sending (sexual) photos	Immediately sending personal photos (that can be quite sexually explicit).	3
Suspicious profile	Profile contains 'dirty' content. Place of residency. Age. Time already active on Facebook.	3

(profile) pictures, being from abroad, and suspicious language. Content signals can be very clear (e.g., immediately sending sexual comments or threatening someone), but also ambiguous (e.g., giving compliments, trying to go private and giving many comments about photos). This applies even more to language signals: It is not clear whether 'youth language' exists and if adolescents agree on what makes a conversation suspicious. Although punctuation, longer sentences, and smileys are mentioned, the question remains whether there is consensus about these aspects and if these techniques are actually useful when confronted with a stranger.

3.3. Conclusion

Adolescents feel in control and able to protect themselves when being approached by someone with wrong intentions. They use different techniques to assess the age of the online stranger. Among these techniques are content and language signals. In our second study, we further investigated the ability of adolescents to actually recognize adults based on content and language signals.

4. Study 2

4.1. Method

To study the strategies adolescents apply online and, more precisely, investigate the content and language aspects they focus on when assessing the age of an unknown contact, we

conducted a second study in which we used (1) four focus groups with a total of 35 adolescent girls and (2) five individual interviews with adolescent girls. In the focus groups, participants were shown video chat conversations between two persons. Participants were asked to assess and explain whether the male chat character was an adult or an adolescent. In the focus groups, the assessments were discussed groupwise. For a validation of the focus group results, we subsequently conducted individual in-depth interviews with five adolescent girls from one of the authors' network.

4.1.1. Participants

The 35 adolescent girls (aged 12–16 years) who participated in the focus groups had various levels of education and were selected from a secondary school in the Netherlands. We conducted four focus groups ($N = 10$, age $M = 12$; $N = 9$, age $M = 12$; $N = 8$, age $M = 16$; $N = 8$, age $M = 16$) in which girls who knew each other from the same class participated. After approval of the research by the school principal and teachers involved, the participating girls were selected by their teachers.

4.1.2. Procedure

Information about the study and a letter of consent was provided to the parents of the selected girls. After the focus groups, parents received another letter that allowed them to retrospectively object to the use of data collected about their child. The focus groups followed two phases. First, participants were shown four different videos containing Facebook conversations between a male and female character. Three of these videos were constructed conversations between a groomer and an adolescent girl (video-recorded textual conversations on Facebook between a girl 'Jolien' and a boy 'Maarten'), while the other video showed an actual conversation between an adolescent boy and girl (also a video-recorded textual conversation on Facebook between Jolien and Maarten). All video conversations did not contain sexual content and portrayed a first online encounter. The conversations involving a groomer were constructed with the help of a police investigator who is an expert on online grooming. This investigator has been working in a Dutch project aimed at detecting groomers for several years. In the project, the investigator works undercover online and pretends to be an adolescent. The project resulted in the identification of several groomers. Because of the police investigator's extensive knowledge about youth language and about how groomers approach potential victims, he was believed to be able to recreate grooming conversations that represent actual instances of communication between groomer and adolescent. Each of the three conversations represented a different strategy a groomer might use (i.e., giving compliments, being a mentor, matching experiences). The fourth video was a recorded anonymized real-life conversation of two adolescents. Parents were asked for explicit permission to use the conversation in this study. In the three constructed conversations and the actual conversation, the male and female characters were given fake names ('Maarten' and 'Jolien').

4.1.2.1. Video 1. Complimentary strategy. In this video, the groomer flatters the adolescent girl by complimenting her on her body. His goal is to receive photos of the adolescent girl. 'Difficult' questions like the school he attends, or how they might know each other are avoided by changing topic or asking different questions. His conversation style is impatient, giving her little time to answer.

4.1.2.2. Video 2. Mentor strategy. The conversation starts when the groomer tries to win the adolescent girl's trust by discussing a shared friend. The groomer soon takes the role of a substitute parent and provides all kinds of advice. In this case, the girl is worried about her parents getting a divorce. In line with being a mentor, the groomer mentions she can always count on him whenever she needs advice or support.

4.1.2.3. Video 3. Experience congruence strategy. In this video, the groomer reacts to the girl's status update, which shows she is sad. The adolescent girl explains that she is having an argument with her mother. To create congruence, the groomer reacts with understanding and similar experiences. He explicitly chooses to side with the adolescent girl.

4.1.2.4. Video 4. Actual conversation between two adolescents. This video contains an actual conversation between two adolescents who did not know each other. In the conversation, the unknown person (male) indicates that he has seen the girl in real life and that he finds her attractive. He almost immediately mentions that he and the girl share a mutual friend and he repeatedly proposes to meet her in real life.

Focus groups were conducted during school hours and could therefore not exceed the time limit of 50 minutes. We used a separate room for the discussions. Before starting, the researcher explained ethical rules like the freedom to refuse to answer, having respect for each other's opinions, and the fact that no right or wrong answers could be given. Permission was asked for recording the conversations on camera. Subsequently, participants were shown the four videos and were asked, while watching (to minimize group influences), to write down if they felt they could assess the stranger's age, and to write down all cues on which the decision was based. After each video, the reported cues were discussed. Special attention was paid to language and content cues.

To get a general impression whether participants in the focus groups behaved naturally, we conducted five additional in-depth interviews in which adolescent girls (aged 12–16 years, with various levels of education) participated. Participants were selected through convenience sampling from one of the authors' network. Parents were asked permission through telephone and after they agreed, they received an email with all necessary information. We explained the nature of the study to the adolescents and asked if they wanted to participate. The same ethical guidelines were provided as was the case in the focus groups. Every interview took about 60 minutes. The procedure was identical to that of the focus groups: Participants were shown the four videos and after each video, content and language cues were discussed.

4.1.3. Data analysis

All group discussions were recorded on camera for transcription afterwards. A coding scheme was developed both inductively and deductively. The coding scheme accounted for awareness (are adolescent girls aware of online grooming), verification of an online approach (how do they verify if someone is an adolescent or an adult), language cues (language cues used to verify someone's age), content cues (cues in the content of the conversation that say something about the age of the online stranger) and confidence (how confident are adolescents in their ability to unmask adults online). To test for reliability, Cohen's Kappa was calculated. After one round and revision, the second round of coding of 15% of the data provided a Cohen's Kappa of .80 which sufficed for continuation

(Cohen, 1968). The notes adolescents made while watching the videos were used as an addition to the data from the conversations. Atlas.ti, a qualitative data analysis program, was used for coding the data.

4.2. Results

4.2.1. Success in assessing a stranger's age

For each of the four videos, participants were asked to estimate if the male stranger was a peer or an adult. Afterwards, the estimations and argumentation were discussed (see Table 2). Estimations could either be correct, incorrect, or unsure. The latter category concerns cases in which participants did not write down an estimation because they were unsure. Of the participants, 43% chose correctly, 14% chose incorrectly, and 43% were not sure.

4.2.2. Verification of an online approach and uncertainty reduction strategies applied

Nearly all adolescent girls indicated that being approached by a stranger online is not a rare occasion. Almost all participants seemed to be well aware of the risks they take when they accept a friend request from an unknown person. They understood that this person can be someone else than they expect. According to most participants, 'just talking' is safe as long as the conversation topic remains innocent and no private details are shared. Adolescents stated that when they accept an unknown person's request, they almost always do some research to find out more about this person. Each of the uncertainty reduction strategies discussed in the theoretical section surfaced in the conversations (see Table 3).

The adolescents seemed to most often start with applying the passive strategy: they indicated to scan the stranger's profile page to check personal information, profile photos, friends, and mutual friends. The stranger is more easily trusted when he or she has more than one photo and mutual friends. When the unknown person has mutual friends but his profile is not convincing, some participants indicated to turn to their mutual friends to acquire information, which corresponds with the active strategy. However, most participants continue talking with the stranger without further investigation when a mutual friend is present. In accordance with the interactive strategy, adolescent girls who are not sure about the stranger after investigating their profile page attempt to collect more information by asking questions. One girl stated:

Table 2. Success in assessing a stranger's age.

Video	Correct		Incorrect		Not sure	
	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%
Video 1: groomer complimentary	18	45	4	10	18	45
Video 2: groomer mentor	10	25	9	23	21	53
Video 3: groomer experience congruence	19	48	6	15	15	38
Video 4: adolescent	21	53	4	10	15	38
Total	68	43	23	14	69	43

Table 3. Uncertainty Reduction Strategies.

Strategy	Description	Times mentioned
Passive	Scan profile page, check origin, check contact list (number of friends, gender, age), check for mutual friends, look for additional photos	12
Active	Ask mutual friend about stranger, verify profile information (e.g., school or sports club)	12
Interactive	Start conversation, video chat, request additional photos, request telephone number and start conversation on WhatsApp, call the unknown person to hear voice	12

I look at his profile first to check if I know him, and if I don't know him, I ask who he is and how he knows me and those kinds of things. But most of the times, it appears I just don't know them, and then I keep talking and just act normally.

4.2.3. Content and language cues

4.2.3.1. Video 1. Grooming strategy: complimentary. Regarding content-related cues, almost all participants noted that the male character did not answer at all or answered questions incorrectly. This was considered suspicious. Participants were also alarmed by the fact that sexually suggestive questions were asked (e.g., asking for body measures) and flirtatious comments were made. For example, one participant stated: 'He said: "You have hot pictures on your FB (Facebook)"'. Additionally, giving compliments was considered a cue. Although some participants saw this as an indicator of talking to a peer, others suggested that it is typically something an older adult with wrong intentions would do. Participants had the same disagreement on impatient behavior shown by the stranger.

A first language cue that participants considered suspicious was the 'mature' way of talking. However, other participants stated that the language used actually resembled that of an adolescent quite well. The participants also focused on the use of specific words. Again, interpretations differed: While for some participants, words such as 'schatje' (babe) were alarming, others were put at ease because this word would be something an adult would never use. Participants with a higher level of education were more inclined to focus on spelling.

4.2.3.2. Video 2. Grooming strategy: mentor. In the case of mentoring, content cues seemed to be more important than language cues when participants assessed the age of the stranger. Participants indicated to be alarmed by the fact that questions were of a very personal nature. They stated that the stranger was overly interested in the problems of the female adolescent and behaved very much as an actual friend would do. On the other hand, some participants argued that being genuinely interested and offering help is something peer adolescents might also do. Another content cue that emerged concerns commenting on mutual friends. Participants argued that having a mutual friend inspires trust, because it offers the possibility to be checked. Even when participants recognize alarming signals, the mutual friend creates trust to ignore those signals.

Language signals that warned participants are the overly use of formal and polite sentences. Full sentences and scarce use of abbreviations and punctuation were all considered suspicious by many. For example, one participant stated: 'He makes long and complete

sentences, like: “hoe gaat het?” (how are you doing?). But young people usually say “Hoe istie” (how r u)’. But again, there was no total agreement. One participant, for example, stated that ‘he talked just like her’. When abbreviations were mentioned as an indicator, participants furthermore commented that they were used too obviously, like it was done on purpose. Additionally, the choice of particular words was considered suspicious. For example, one participants stated: ‘He says “jaa” (yea) instead of “ja” (yes)’.

4.2.3.3. Video 3. Grooming strategy: experience congruence. Here, the participants seemed to mainly focus on content-related signals. First, they argued that the unknown person immediately mentioned the status update of the girl, namely being sad. Participants believed that adolescents would not be as spontaneously concerned as the stranger about someone’s well-being. Second, the unknown person introduced himself as a friend. According to the participants, this was supposed to make her feel comfortable, but instead, it raised questions. Third, the use of personal questions alarmed the participants. Fourth, the indicated age of the unknown person was a warning. The unknown person stated that he was 18 years; an age adolescents consider too old for being interested in the 13-year-old girl in the video. ‘An 18-year-old boy is really not appealing to a 13-year-old girl’. On the other hand, some participants stated that an adult would rather say he is 14 years instead of 18 years: ‘That’s why I don’t think it’s a lie. An adult would say he is 14 because he doesn’t want to risk the young girl breaking contact based on the large age difference’. ‘Well, if you are 13, 14, 15, you’ll want a girl who is 13 and if you’re really desperate, late 20’s, but if you’re 18, you really don’t want a girl who is 13 years old’.

Concerning language cues, the participants first stated that the use of smileys is common among young people. Thus, participants believed that the unknown person was a peer. A second language cue concerns the use of laughter (e.g., ‘hihi’). However, the participants disagreed whether this was a cue indicating that the unknown person was a peer or an adult. Some participants use words indicating laughter themselves, and therefore view it as something belonging to youth language, while others never use it.

4.2.3.4. Video 4. Actual conversation between adolescents. The participants mentioned several content-related signals. In the video, the male character aimed at meeting the female character offline. Although some participants viewed this as an alarming signal, other participants viewed it as an indication that the male character was a peer. Especially the fact that the male character wanted to meet at the female character’s home or in her neighborhood created trust. According to the participants, an adult would suggest meeting somewhere unfamiliar. Second, the male character mentioned a mutual Facebook friend. This instantaneously created more trust, because it has the potential of being checked. Third, participants reacted on the attitude of the male character as being tough and having no idea of how to tempt a girl. This, they argued, would immediately indicate that he is a peer.

Language signals mentioned are the use of abbreviations and words that are only used by adolescents, as evidenced by the following quote: ‘He uses the abbreviation “lkr” for the word “lekker” (hot) and that is more of an adolescent style. Adults would rather say “mooi” (beautiful) or something’. Moreover, the unknown person starts the conversation with just ‘hee’ (‘hi’); according to the participants, this is an adolescent way of opening.

Table 4. Content and language cues mentioned.

	Content cues	Language cues
Cues adolescents disagreed on	Being impatient Being complimentary Focusing on meeting offline	Use of specific words like 'schatje' (babe)
Cues adolescents agreed on	Being very personal while ignoring personal questions Being overly interested and behaving as a friend Being more direct and sexually focused	Being polite in word usage Using punctuation, and/or longer sentences Less use of abbreviations Less application of word shortening, and less omission of redundant letters

4.3. Conclusions

Based on the four videos, some main identifiers can be extracted. Table 4 shows the main cues participants relied on, although they did not always agree on the meaning of these cues.

5. Discussion

5.1. Main findings and practical implications

Prior research reveals that an online approach by strangers (of all ages) is common among adolescents. Our findings suggest that many adolescents do not feel very vulnerable when this happens. They believe they can control the situation. However, some adolescents, especially younger participants indicated to be scared and to feel vulnerable. Mitchell, Finkelhor, and Wolak (2001) suggest that younger adolescents report being upset or afraid to a higher degree than older adolescents. In relation to the first research question, the findings suggest that most of the adolescent girls are confident in their ability to assess whether the stranger is a peer or an adult with possible sexual intentions. In their assessment of a stranger's age, adolescent girls check, for example, what is being said, conspicuous (profile) pictures, or the language used. One of the main conclusions is that adolescent girls claim to be able to assess a stranger's age. However, based on the adolescent girls' evaluations of the chat conversations in the second study (concerning the second research question), we conclude that they are often unable to correctly assess the chat partner's age. In many cases, they make incorrect assessments or are in doubt. They also often seem to contradict each other. This is not strange as online conversations only contain verbal communication and miss any use of nonverbal cues.

In the light of the third research question, most of the adolescents seem to apply the passive strategy of uncertainty reduction: They scan the profile page of the stranger, check contact information, and the profile picture. Special attention is paid to the presence of mutual friends: When mutual friends are present, trust is heightened significantly because the possibility is offered to cross-check the identity of the unknown person. When adolescents are still unsure and require additional information, they indeed indicate to turn to (mutual) friends to find out more about the unknown person's background. The interactive strategy of uncertainty reduction is also applied, as most of the adolescents continue the conversation with the stranger to find out more. This strategy often succeeds the passive strategy. Unfortunately, adolescent appear to be less critical when a mutual friend is present. This raises concern, because groomers can easily scan someone's profile page and connect to some

of their friends to increase trustworthiness. Therefore, we recommend that SNS users be more careful when sharing connections publicly. Furthermore, adolescents should become more aware of the fact that creating a mutual friend is quite easy.

In relation to the fourth research question, content-related cues that alarm adolescent girls are: ignoring personal questions, showing an exaggerated amount of interest, acting as a friend, and being sexually oriented. Other cues are being impatient, being complimentary, and initiating an offline meeting. However, interpretations of all these cues differed, and there seems to be much disagreement. From previous research, we do also know groomers do use some of the above described tactics but they may still get away with it because of the manipulative nature of their communication (Smith et al., 2014). The fourth research question also addressed language cues. Although most girls indicated to be aware of the fact that groomers can learn more about their language style, they do not expect groomers to excel in their language reproduction. They believe adults are unable to know everything about the language adolescents use. Indeed, writing styles have changed revolutionary and especially teenager language is developing at a fast pace (Rybníček, Poisel, & Tjoa, 2013). Consequently, the adolescents generally believed they would be able to recognize an adult based on his language use, even when using youth language characteristics. Cues mentioned here related to word usage, abbreviations, sentence length, and tone. A polite tone, polite word usage, and using punctuation are all connected to adult language use. Adolescents are believed to use more abbreviations, shorten words, and often omit redundant letters. However, the adolescent girls did not reach consensus and it appeared to be difficult to agree on suspicious words or actions. In contrast to prior studies (Webster et al., 2012), rarely any comments surfaced about the structure of sentences. A possible explanation could be that there were no obtrusive elements present in the sentences used in the videos.

To a large extent, adolescent girls disagreed on several of the identified content- and language-related cues. When asked about their disagreements, the adolescent girls argued that youth language is always evolving with new words and abbreviations. Although there appears to be overlap in the language use of adolescents, they also improvise a lot in their conversations. Focusing on content and language style may therefore serve as a basis to identify each other, but will certainly not suffice to recognize groomers. Thus, it is important to educate adolescents about the immense variation in perceptions about what 'youth language' actually is, and about what kind of content-related cues would be alarming. We also recommend schools to implement an equivalent of our chat conversations videos in their classrooms and to discuss the presumed age of the chat characters afterwards. In our research, this approach created a lot of self-reflection and awareness among the adolescent girls. This could be combined with an illustrative movie (e.g., *Trust*) to increase awareness even more and to let the peer group empathize with possible victims. Besides focusing on age verification, attention should be paid to understanding the motives of an online stranger as not every stranger hides behind a fake profile (Whittle et al., 2015) and sexual solicitations may just as easily come from peers (Mitchell et al., 2014).

5.2. Limitations

How young people assess the veracity of an online approach has, to our knowledge, never been directly investigated. In the current contribution, we attempted to shed more light on

content and language cues as aspects of a suspicious online approach. Although the nature of this research was exploratory, it does reveal the strategies young people employ to verify someone's age, and on which language and content cues they focus when entering into a dialogue with an unknown person. It must be pointed out that our second study used conversations shown on videos and did not ask adolescents to be in an actual conversation with a groomer. The latter may provide a more deliberate and active way of scanning, but creating such a setting may be very hard if not impossible. Nevertheless, the videos were constructed as accurately as possible, by using a police investigator with extensive knowledge of online grooming. Real grooming conversations could have been derived, but we wanted to manipulate the conversations to fit different grooming styles and more importantly conversations needed to be free of sexual explicit content. Thus, this study should be considered as a start in exploring the actual strategies adolescents use and follow-up research may try to find ways to involve adolescents in real-time conversations to show their actual strategies.

Using focus groups and in-depth interviews to measure young people's assessment of an online approach poses several validity problems. To reduce possible researcher bias, we used inductively created coding schemes and part of the conversations were independently coded by a second researcher. To further increase the validity of the results, future studies could employ a different method to verify the results of this study, such as content analysis on adolescents' strategies in actual grooming conversations, discussions with therapists of grooming victims, or discussions with past victims themselves. Although participants may be hard to find, the results of these types of studies can be very valuable. The five interviews were performed for the sole purpose of cross-checking whether individual interviews would provide completely different results from group interviews. Although five interviews is not a substantial number, they do indicate that the group interviews posed valid results.

In the current contribution, we primarily focused on content and language cues. However, some adolescent girls mentioned other characteristics that they consider particularly important in relation to online grooming. These characteristics relate to the victims of online grooming. Participants suggested that particular types of girls are prone to become a victim of online grooming; especially those who are insecure about themselves, feel lonely, or feel unworthy are at risk, as well as those with a lower level of education. For future research, it would be interesting to determine to what extent this assumption affects adolescents' risk perceptions, and consequently, their response to a request from a stranger. Prior research has indicated that adolescents generally apply adequate coping strategies, leading to the rejection of a stranger's request, but that it is plausible that these girls are more confident, secure, and assertive than adolescents who actually become a victim of online grooming (Webster et al., 2012).

Finally, we are aware of the fact that age deception is not always a strategy groomers use. In fact, sometimes adolescents are well aware of the fact that they are going to meet an older person (Whittle et al., 2015). A relationship with an older person may be considered as more exciting and satisfying. However, especially in initial stages of gaining trust, groomers often deceive victims concerning their age or identity (Berson, 2003; Whittle et al., 2015). When the truth comes out adolescents may however still choose to stay in touch with the adult (Whittle et al., 2015). Thus, it is not yet clear whether the ability to verify the age of a stranger *per se* reduces the risk of becoming a victim of online grooming,

nor is it clear whether it will lead to discussing the topic with a trusted adult. Therefore, solely focusing on teaching children not to trust strangers online or to become experts in verifying someone's age is not enough. Efforts should also be put in setting up healthy boundaries, knowing when a relationship becomes irresponsible or abusive, and trying to detect the motives of an online stranger's approach. Especially because many online sexual solicitations also seem to come from peers instead of older persons (Walsh, Wolak, & Mitchell, 2013).

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No potential conflict of interest was reported by the author(s).

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