Universiteit Antwerpen

This item is the archived peer-reviewed author-version of:

Whether or not to engage in sexting : explaining adolescent sexting behaviour by applying the prototype willingness model

Reference:

Walrave Michel, Ponnet Koen, Van Ouytsel Joris, Van Gool Ellen, Heirman Wannes, Verbeek Anouk.- Whether or not to engage in sexting : explaining adolescent sexting behaviour by applying the prototype willingness model

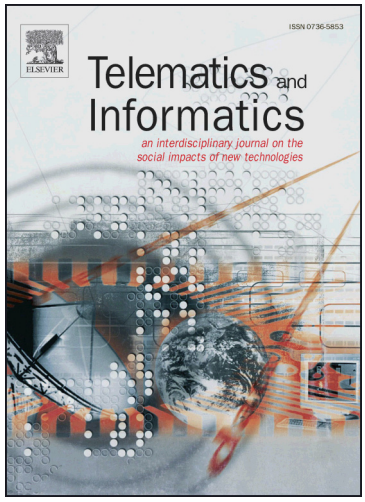
Telematics and informatics - ISSN 0736-5853 - (2015), p. 1-13

DOI: http://dx.doi.org/doi:10.1016/j.tele.2015.03.008

uantwerpen.be

Institutional repository IRUA

Accepted Manuscript



Whether or not to engage in sexting: Explaining adolescent sexting behaviour by applying the prototype willingness model

Michel Walrave, Koen Ponnet, Joris Van Ouytsel, Ellen Van Gool, Wannes Heirman, Anouk Verbeek

PII: S0736-5853(15)00029-5
DOI: http://dx.doi.org/10.1016/j.tele.2015.03.008
Reference: TELE 665

To appear in: *Telematics and Informatics*

Received Date: 23 October 2014
Revised Date: 16 February 2015
Accepted Date: 24 March 2015

Please cite this article as: Walrave, M., Ponnet, K., Van Ouytsel, J., Van Gool, E., Heirman, W., Verbeek, A., Whether or not to engage in sexting: Explaining adolescent sexting behaviour by applying the prototype willingness model, *Telematics and Informatics* (2015), doi: http://dx.doi.org/10.1016/j.tele.2015.03.008

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Whether or not to engage in sexting: Explaining adolescent sexting behaviour by applying the prototype willingness model.

Michel Walrave, PhD *(corresponding author)* [a]

michel.walrave@uantwerp.be

+32 – 32655681

Koen Ponnet, PhD [a,b,c]

koen.ponnet@uantwerp.be

+32 – 32655530

Joris Van Ouytsel, MSc [a]

joris.vanouytsel@uantwerp.be

+32 – 32655279

Ellen Van Gool, MSc [a]

ellen.vangool@uantwerp.be

+32 – 32654914

Wannes Heirman, PhD [a]

wannes.heirman@uantwerp.be

+32 – 32655671

Anouk Verbeek, MSc [a]

anouk.verbeek@student.uantwerp.be

+32 – 32655335

[a] Department of Communication Sciences, Research group MIOS, University of Antwerp, Sint-Jacobstraat 2, 2000 Antwerp, Belgium
[b] Social Competition and Law, University of Antwerp, Blindestraat 14, 2000 Antwerp, Belgium
[c] Higher Institute for Family Sciences, Odisee, Huart Hamoirlaan 136, 1030 Brussels, Belgium

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

Whether or not to engage in sexting: Explaining adolescent sexting behaviour by applying the prototype willingness model.

1. Introduction

Communication technologies have rapidly permeated young people's lives, not the least in how adolescents date or hook up. Researchers therefore started to explore the ways in which digital technologies are used to initiate and sustain romantic relationships. One line of research focuses on a particular type of communication among romantic partners or strangers, which is defined as sexting, namely "the interpersonal exchange of self-produced sexualized texts and above all images (photos, videos) via cell phone or the internet" (Döring, 2014). While sexting originally was limited to textual exchanges, the increasing convergence of several technologies offers individuals the possibility to take pictures and make videos that can be shared with different devices.

Along with sexting receiving increasing attention from researchers, public debate has centred on the swapping of intimate text messages and pictures among adolescents. More particularly, concerns have risen about the possible misuse of intimate pictures for cyberbullying or harassment (Ringrose et al., 2013). Tragic cases that attracted a lot of media attention have raised questions on the reasons for and consequences of this form of mediated intimate communication (Crimmins and Siegfriend-Spellar, 2014; Draper, 2011).

Until now, academic interest has primarily focussed on the prevalence and correlates of sexting (Van Ouytsel et al., 2014c). Prevalence figures highly differ across studies. A review of the literature found prevalence rates among adolescents ranging between 2.5 and 21%, which might reflect differences in employed definitions and survey methods (Döring, 2014).

ACCEPTED MANUSCRIPT

Qualitative studies have stressed the importance of peer influence in understanding sexting behaviour (Lippman and Campbell, 2014; Ringrose et al., 2013). More particularly, a certain 'double standard' seems to exist that rewards boys and denigrates girls for the same behaviour (Ringrose et al., 2013; Vandoninck and d'Haenens, 2014; Walker et al., 2013). On the one hand, mostly girls are pressed to send sexting messages to boys. On the other hand, the same girls are criticised if they do (Lippman and Campbell, 2012b; Lippman and Campbell, 2014; Ringrose et al., 2013; Yeung et al., 2014). By contrast, boys are less the target of criticism for the same behaviour. Moreover, some boys swap sexting messages as a kind of 'popularity currency' (Lippman and Campbell, 2012a; Ringrose et al., 2012) to gain status among their peer group by proving their sexual activity or, at least, their success with girls. In sum, how sexting is perceived among peers and across genders plays a central role in adolescents performing this behaviour. The present study therefore adopts the prototype willingness model (PWM) (Gerrard et al., 2008; Gibbons and Gerrard, 1995; Gibbons et al., 1998) to investigate how involvement in sexting is influenced by, amongst other things, images adolescents have of peers who engage in sexting behaviour. This theoretical framework could contribute to explaining why youngsters engage in sexting and could add to the current knowledge on peer group dynamics that play a role.

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

2. Literature and hypotheses development

2.1. Motives

In recent years, several studies have focussed on the motivations that fuel sexting behaviour. Some studies situate sexting within a broader sexualisation of (popular) culture (Ringrose, Gill, Livingstone, & Harvey, 2012; Walker, Sanci, & Temple-Smith, 2013). Concern is rising that sexting may be another expression of a sexualised culture that especially puts pressure on women (Walker et al., 2013). Self-produced 'sexy' images are linked with the objectification of, especially, the female body in music videos, advertising, movies and television series but also in 'selfies' celebrities post online (Ringrose et al., 2012). Within this broader societal framework, adolescents' motives to engage in sexting are further explained from a developmental perspective. Adolescence is characterised by important transformations, both individually and socially. Teenagers undergo physical changes, and they develop different kinds of relationships, including romantic ones (Albert and Steinberg, 2011; Altman and Taylor, 1973; Buhrmester and Furman, 1987). Electronic forms of intimate communication may provide venues for adolescents to achieve developmental tasks related to their unfolding identity, developing sexuality and relationship formation (Šmahel and Subrahmanyam, 2014). More particularly, to communicate with others about sexual topics, allows adolescents to explore their sexual identity and express their sexual interests (Valkenburg and Peter, 2011). In this context, sexting can be used to show romantic interest in others, to start and sustain intimacy by exchanging intimate messages or even serve as a sexual activity in a long-distance relationship (Döring, 2014; Perkins et al., 2013; Renfrow and Rollo, 2014; Walker et al., 2013). This especially holds, as adolescent couples can be sometimes separated from each other during holidays or other activities (Albury and Crawford, 2012). Moreover, next to sustaining intimacy, some

ACCEPTED MANUSCRIPT

scholars found that sexting could be an alternative for young people whose religions prohibit physical intercourse for unmarried couples. Besides, research among adolescents revealed that some perceive sexting as a safe alternative that is free from risks of getting pregnant or contracting an STD (Lippman and Campbell, 2012a; Renfrow and Rollo, 2014).

Whereas sexting is often situated within an unfolding romantic relation, it can also occur outside an intimate relationship. Sexting can be a challenge young people set for themselves. It then occurs as a kind of 'truth or dare' (Willard, 2010), to show off, just as a joke between friends or as a form of bonding activity (Albury and Crawford, 2012). Additionally, researchers found that adolescents who score higher on sensation seeking engage more in sexting behaviours (Van Ouytsel et al., 2014b). As sensation seekers are avid of thrilling experiences, sexting can be part of this exploration, wherein the provoked or longed for sensation overshadows the risks they fear (Baumgartner et al., 2014).

2.2 Risks

Sexting does not only occur in a trusting and respectful romantic relationship or among friends as a kind of challenge. A clear distinction has to be made between contexts wherein young people exchange such messages within a trusting relationship or, by contrast, under coercion (Simpson, 2013). Research found that girls are sometimes pressured into sending sexting messages. This form of nonconsensual sexting can be seen as problematic (Hasinoff, 2013). Qualitative research revealed that, in some circumstances, sexting can be an extension of the harassment girls may experience at school (Ringrose et al., 2012). Moreover, as some boys are swapping sexting messages

ACCEPTED MANUSCRIPT

they receive as 'proof' of their success among the opposite sex, this can induce negative comments, harassment or bullying of the depicted girl. More particularly, a study found that adolescents engaging in sexting were more likely to have been a victim of offline and online bullying (Dake et al., 2012). In sum, the intimate picture can go 'viral' and therefore impact the victim's reputation.

Not only sexting messages exchanged outside a romantic relationship but also inside a relationship can rapidly spread. While 3% of young people engaged in a romantic relationship admit they have forwarded sexting messages of their partners, 15% did the same in what they defined as an uncommitted relationship (Drouin et al., 2013). Another study, among young adults, found that 7% of respondents reported that their nude sexting message (picture or video) was shared with others without their consent. This rose to 11% for seminude pictures (Crimmins and Siegfriend-Spellar, 2014). The spreading of a sexting message to people other than the intended recipient is one of the most spontaneously cited risks observed in a qualitative study among college students (Renfrow and Rollo, 2014). Another study highlights an additional risk. For same-sex-attracted youth, the risk of sharing these pictures through dating apps or sites resides in recipients 'outing' them, which might result in bullying (Albury and Byron, 2014).

Also, when a couple parts ways, sexting messages can be spread as a form of revenge (Břízová and Miltnerová, 2014). This diffusion of a sexting picture can affect the original sender's reputation. Therefore, some youngsters develop strategies to minimise the risk of being identifiable by unintended viewers (e.g., eliminate face or body markings from the picture) (Renfrow and Rollo, 2014).

Moreover, in some countries, possessing and sending a sexually explicit depiction of a minor can be prosecuted (Lievens, 2014). Still, few adolescents are conscious of the

ACCEPTED MANUSCRIPT

legal penalties attached to the production and distribution of sexting images from minors (Albury and Crawford, 2012).

Finally, sexting has been related to other risk behaviours. Some studies (among adolescent or adult samples) found correlations between sexting and sexual risk-taking behaviour, including unprotected sex, but also drug and alcohol consumption (Benotsch et al., 2012; Crimmins and Siegfriend-Spellar, 2014; Dake et al., 2012; Dir et al., 2013; Ferguson, 2011; Lee et al., 2013; Perkins et al., 2013; Rice et al., 2012; Temple et al., 2014; Yeung et al., 2014). Especially substance and alcohol use could alter an individual's decision making by lowering inhibitions and could lead to risk-taking behaviour (Temple et al., 2014). Also, a review of the literature on sexting found associations with emotional and psychosocial difficulties (Van Ouytsel et al., 2014c). For instance, associations were found between sexting, impulsivity and experiencing difficulties of regulating one's emotions (Houck et al., 2014; Temple et al., 2014).

As engagement in sexting involves reputational risks, can be situated in a larger pattern of risk-taking behaviour and can be related to psychosocial problems, research needs to further investigate which factors affect minors' engagement in this behaviour. Next to research on adolescents' attitudes towards sexting, how they perceive peers who engage in this behaviour could shed new light on this increasingly debated phenomenon. As adolescents are highly sensitive about their image, especially among peers, the prototype willingness model offers a venue for providing a better understanding of young people's sexting behaviour.

ACCEPTED MANUSCRIPT

2.3 Prototype willingness model

The influence of peers, but also parents and other persons important to growing up youth, may play a role in understanding sexting behaviour. So does the mental image adolescents have of individuals who engage in sexting. As adolescence is a life period characterised by important physical and emotional changes, feedback and support from others, especially peers, is important to them (Buhrmester & Furman, 1987; Valkenburg & Peter, 2011). Therefore, the decision to engage in sexting could be fuelled by how adolescents perceive sexting's influence on their reputation. By including young people's images of individuals who engage in sexting and how they evaluate these images, the present study applies the PWM.

The theory assumes that a lot of adolescent risk behaviour is not necessarily completely volitional. Next to a *reasoned path* that could lead to certain decisions based on rational train of thought and that is grasped by, for instance, the theory of reasoned action (TRA) or the theory of planned behaviour (TPB), the PWM also assumes a *social reaction path* which is more intuitive and spontaneous.

The reasoned path assesses behaviour based on a thoughtful balance of benefits and risks of a behaviour. First, individuals' attitude towards the consequences of a particular behaviour may influence their intentions to perform a particular behaviour. Moreover, this reasoned path also assumes that an individual's intention depends on the influence of this person's perception of significant others' approval of this behaviour, i.e., the subjective norm. Peer influence especially increases during adolescence, as teenagers spend more time with peers (Albert and Steinberg, 2011). They are more inclined to take peer advice into account and develop their own identity in the context of their intensifying peer relationships (Steinberg and Morris, 2001). However, influence of

ACCEPTED MANUSCRIPT

peers can also unfold in risk behaviour (Gardner and Steinberg, 2005). Previous research found that peer norms predicted adolescents' engagement in different kinds of risky online sexual behaviour (e.g., sending a partly naked photo/video) (Baumgartner et al., 2011).

In terms of attitude towards sexting, adolescents may focus on its positive outcomes, as romantic involvement and being sexually active are important to gain status within the peer group (Prinstein et al., 2003). This could further influence young people's attitude towards sexting as 'proof' of their romantic involvement or, at least, of them being desired. Moreover, adolescents may perceive pressure from peers to engage in a sexual activity, as it enhances one's popularity within the peer group (Prinstein et al., 2003). Peer pressure has been found to play a role in sexting behaviour among youth, as it does in other types of (risk) behaviours (Collins and Steinberg, 2006; Vanden Abeele et al., 2014).

Finally, the TRA predicts that the higher individuals' intentions, the higher the chance they perform the behaviour. Therefore, based on the TRA constructs included in the PWM, we hypothesise the following:

H1: The more positive adolescents' attitude towards sexting, the higher will be their intention to send sexting messages.

H2: The more favourable the subjective norm for engaging in sexting, the more adolescents intend to send sexting messages.

H3: The higher adolescents' intention, the more they are inclined to send sexting messages.

However, some risk behaviours may not be planned or intended. They can be induced and facilitated by circumstances (i.e., social reaction path). Thus, to actually perform a

ACCEPTED MANUSCRIPT

risk behaviour also depends on an individual's willingness to do so in a particular situation. Therefore, next to behavioural *intentions*, assessed through the TRA, the PWM introduces a person's *willingness* to engage in a behaviour. Behavioural willingness reflects "a person's openness to opportunity, i.e., a willingness to engage in risky behavior in circumstances that are conducive to that behavior" (Gerrard, 2005, p. 306). Especially when investigating risk behaviours, individuals who perhaps don't have the intention to engage in specific risky conduct could nevertheless be open to do so in certain circumstances. This is supported by evidence from research on several risk behaviours, finding that willingness predicted conduct, independently of behavioural intention (Gibbons et al., 2004; Hukkelberg and Dykstra, 2009). Based on the above, we expect the following:

H4: The higher adolescents' willingness to engage in sexting, the higher their intention (H4a) and their actual behaviour (H4b).

Moreover, the PWM assumes that individuals' willingness to engage in risk behaviour is associated with the mental images they have of persons performing this behaviour, i.e., *prototypes*. In short, young people may have clear images of peers engaging in a specific risk behaviour. Subsequently, if they engage in this behaviour, they are conscious that they can acquire the image that is associated with persons who perform that behaviour (Gibbons et al., 1998). Adolescents in particular are highly influenced by how they are perceived by others (Erikson, 1993; Manning and Allen, 1987), especially their peers, as adolescents further develop a sense of self and belonging. In the case of this study, the image young people may have of a 'typical' peer who sends sexting messages could influence their willingness to engage in it. In other words, we expect the following:

H5: The more favourable adolescents perceive the prototype of a person sending

ACCEPTED MANUSCRIPT

sexting messages, the higher their willingness to engage in sexting.

H6: The more youngsters identify themselves with the prototype of person sending sexting messages, the higher their willingness to engage in sexting.

In sum, sexting can be perceived as a behaviour including some level of risk. Moreover, as adolescents are highly influenced by their peers, the PWM could add to the research that has been conducted based on the TRA or TPB (Walrave et al., 2014), as it incorporates a social reaction path next to the reasoned path. Therefore, the PWM may offer a more robust framework than the TRA for predicting adolescents' risk-taking behaviour, as they make decisions under conditions of emotional arousal rather than present themselves with rational arguments, especially in behaviour that entails some level of risk (Gardner and Steinberg, 2005). As making and sending a sexting message is a quick and easy-to-perform behaviour, young people who do not (rationally) *intend* to send sexting messages, but are *willing* to do so, could perform this behaviour in certain circumstances that facilitate this behaviour.

2.4 Relationship

While sexting may occur among friends, most sexting messages are exchanged within a romantic relationship (Crimmins and Siegfriend-Spellar, 2014; Drouin et al., 2013; Renfrow and Rollo, 2014). Sexuality plays an important part in satisfaction within a romantic relationship (Kisler and Christopher, 2008). The more partners feel safe in their relationship, the higher the chance that they have a satisfactory sexual relation (Johnson and Zuccarini, 2012). In turn, this not only increases relationship satisfaction but also augments partners' openness to experiment with novel sexual activities (Feeney and Noller, 2004). Research among adults found that individuals in a trusting long-term

ACCEPTED MANUSCRIPT

relationship were more inclined to experiment with several sexual activities (Kaestle and Tucker Halpern, 2007). More particularly, a study among adults found that engagement in sexting was related to relationship satisfaction (Parker et al., 2013). Correspondingly, a study among college students found that some young women sent sexting messages in order to please their partner (Renfrow and Rollo, 2014). However, the same study also found that some young adults give considerable attention to the phrasing of their sexting message. They feared taking it too far, breaching the (moral) standards in the couple and giving their partner a 'wrong message' about their personality (Renfrow and Rollo, 2014).

In sum, sexting could be an online extension of couples' experimentation with sexuality within a committed relationship and may strengthen closeness between lovers. We therefore hypothesise the following:

> H7: Adolescents who are engaged in a romantic relationship share a more positive attitude towards sexting (H7a), perceive a more positive subjective norm (H7b) to engage in sexting and perceive the prototype as more favourable (H7c) and as being more similar to them (H7d).

2.5 Need for popularity

Next to a 'relationship currency', several authors view sexting also as a 'social' or 'popularity currency' (Lippman and Campbell, 2012a; Ringrose et al., 2013). Boys were found to collect sexting pictures of girls as 'trophies' to show off or as proof of their success with girls (Lippman and Campbell, 2012a; Yeung et al., 2014). Other research observed that also porn is exchanged between adolescent boys to gain status within their peer group (Bond, 2011). However, in contrast to 'professionally' produced porn, self-produced intimate pictures could share a greater value among peers, as they can be seen

ACCEPTED MANUSCRIPT

as ‘proof’ of a boy’s capacity to receive these intimate pictures of girls. In contrast to sexting, porn consumption is depicted in a qualitative study as an activity for ‘nerds’ and ‘virgins’ (Ringrose et al., 2012). Receiving and sharing self-produced sexual content, though, could be seen as proof of one’s sexual maturity and strengthen one’s position in the peer group. Among young men, sharing sexting messages of their girlfriends was motivated by feelings of pride regarding ‘their’ girl (Renfrow and Rollo, 2014). Adolescents have further been found to engage in sexting to show off, get attention from peers, show their success among cross-gender peers and gain status in the peer group (Lenhart, 2009; Lippman and Campbell, 2012a; Ringrose et al., 2013). Correspondingly, research among female young adults found that sexting was associated with histrionic personality traits that include liking being the centre of attention (Ferguson, 2011). Adolescents’ need for popularity, especially among peers, has been found to explain other risk-taking behaviours, such as drinking alcohol, smoking or aggressive behaviours (Brechwald and Prinstein, 2011). Adolescents are more likely to engage in health-risking or aggressive behaviours when they perceive the same behaviour among high-status peers (Cohen and Prinstein, 2006). Therefore, young people highly in need of peer approval could share a more positive attitude towards sexting and feel more peer influence to engage in this behaviour, which leads us to the final hypotheses:

> H8: The higher adolescents’ need for popularity, the more positive their attitude towards sexting (H8a), the more favourable their subjective norm to perform it (H8b) and the more they assess the prototype as more favourable (H8c) and find they resemble the prototype (H8d).

ACCEPTED MANUSCRIPT

3. Method

3.1 Procedure and participants

A paper-and-pencil questionnaire was completed by 217 pupils aged between 15 and 19 years (M = 16.72, SD = 1.04), with 61.8% girls (n = 134). Formal consent was sought from the school principal and supervising teachers. It was made clear at the beginning of the survey that the pupils were under no obligation to participate. Further, the survey's purpose and procedure were explained. Finally, the researcher assured participants that their responses would be anonymous and confidential and that no information would be passed on to teachers, parents or fellow pupils. At the start of the survey, sexting was defined as "sending a sexually explicit text message, picture or video of yourself to someone else through mobile phone or the internet".

3.2 Measures

Need for popularity. Adolescents' need for popularity was measured by 8 items on a 5-point scale (Santor et al., 2000). In the present study, the scale was found to be reliable (α = .91).

Attitude. Respondents rated their attitude towards sexting by means of the following five semantic differential items on a 7-point scale ("Sexting is …" Item 1: *not funny – funny*; Item 2: *stupid – not stupid*; Item 3: *not amusing – amusing*; Item 4: *harmful – not harmful*; Item 5: *not normal – normal*). The reliability of the scale was good (α = .90).

Subjective norm. Six items measured the respondents' own appraisal of the social pressure to perform the target behaviour (e.g., "Most people who are important in my life would approve if I send a sexting message"). The items were scored along a Likert scale ranging from 1 = *strongly disagree* to 6 = *strongly agree*. The internal consistency of the items was good (α = .86).

ACCEPTED MANUSCRIPT

Prototype favourability. Respondents' attitude towards the prototype of a person engaging in sexting was measured by six characteristics (smart, cool, self-confident, popular, funny, able to have a lot of romantic partners) based on guidelines using the PWM (Gibbons and Gerrard, 1995) and qualitative research on sexting (Lippman and Campbell, 2014; Ringrose et al., 2013). These characteristics were introduced by asking the respondents to "Think about a typical person your age who engages in sexting", followed by asking the respondents to indicate how much the characteristics match or do not match this type of person (measured on a 7-point scale ranging from *totally not* to *totally*, α = .81).

Prototype similarity. Following the procedure described by Gibbons and colleagues (Gibbons and Gerrard, 1995; Gibbons et al., 2003) adolescents' perceived similarity with the prototype was assessed using a single question, "In general, how similar do you think you are to this type of person who sends a sexting message?", assessed on a 7-point Likert-scale anchored by *totally not* and *totally*. The higher the respondents' score on the scale, the more they are convinced they resemble the prototype of a person their age who sends sexting messages.

Willingness. Respondents were confronted with two brief descriptions of concrete situations (e.g., "Imagine that your boyfriend or girlfriend asks you to send a sexting message; what would you do in this situation?"). Their willingness to engage in sexting was assessed by four items (e.g., "I would ask myself questions but would eventually send a sexting message") measured on a 5-point Likert scale (1=*certainly not*, 5=*certainly*, α = .81).

Intention. To measure adolescents' intention, respondents were asked to answer four items (e.g., "I intend to engage in sexting in the next two months"). The items were

ACCEPTED MANUSCRIPT

scored along a 6-point Likert scale ranging from 1 = *strongly disagree* to 6 = *strongly agree*. The reliability of the scale was good (α = .95).

Sexting behaviour. Adolescents' sexting behaviour was assessed with three questions (e.g., "Did you engage in sexting during the past two months?") measured on a 6-point Likert-scale ranging from *never* to *very often* (α = .94).

A total of 18% (n = 41) of surveyed adolescents had engaged in sexting during the two months preceding the study. Other descriptives of the variables are presented in Table 1.

[PLEASE INSERT TABLE 1 ABOUT HERE]

3.3 Analytic strategy

To investigate the relationships among the constructs, structural equation modelling was applied to the collected data using Mplus 6 (Muthén and Muthén, 2010). The analyses were carried out in the following way. Firstly, we built a measurement model and examined whether the observed variables reliably reflected the hypothesised latent variables in the research model. Subsequently, we added the structural paths to the model in order to assess the adequacy with which the research model predicts young people's sexting behaviour. Structural equation modelling results were obtained with maximum likelihood mean adjusted because preliminary tests suggested that self-reported sexting behaviour was a not normally distributed dependent variable.

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

4. Results

The initial measurement model provided an adequate fit for the data, with $\chi^2(598) = 967.91$, $p < .001$; CFI = .92, TLI = .91, RMSEA = .053 (CI: .047 - .059), and SRMR = .054. All factor loadings were significant and above .53 (see Table 2). The correlations among the study variables are presented in Table 3. All associations were significant, with $p < .001$, except for the association between need for popularity and sexting behaviour, which yielded significant with $p < .05$.

[PLEASE INSERT TABLE 2 & TABLE 3 ABOUT HERE]

[PLEASE INSERT FIGURE 1 ABOUT HERE]

As shown in Figure 1, the structural model provided an adequate fit to the data. The attitude (H1), subjective norm (H2) and willingness to engage in sexting (H4a) are significantly related to the intention to send sexting messages.

Subjective norm had the strongest relation with intention ($\beta = .42$, $p < .001$), followed by willingness ($\beta = .30$, $p < .001$) and attitude ($\beta = .31$, $p = .001$). Thus, participants who perceived more social pressure from important others in their lives, adolescents who were more willing to engage in sexting and those with a more favourable attitude were more likely to show an intention to send sexting messages. Our analyses revealed that the study variables together with the covariates explained 75.2% in total variance of adolescents' sexting intention.

In line with H3, our analyses indicated that the higher individuals' intention, the more they are inclined to send sexting messages. Intention ($\beta = .88$, $p < .001$) and willingness (H4b, $\beta = .07$, *ns*) jointly account for 70.2% of the variance in sexting behaviour.

ACCEPTED MANUSCRIPT

As predicted by H5, the more favourable adolescents assess the prototype of persons engaging in sexting, the higher their willingness to engage in this behaviour (β = .28, p < .001). The more respondents identified themselves with this prototype, the higher their willingness to send sexting messages (H6, β = .40, p < .001).

Next, we assessed whether adolescents' engagement in a romantic relationship had an influence on the key variables of the model. As predicted by H7, engaged adolescents shared a more positive attitude (H7a, β = .20, p < .001), a more favourable subjective norm (H7b, β = .29, p < .001), assessed the prototype more favourably than single youth (H7c, β = .13, p < .05) and found themselves more resemblant of the prototype (H7d, β = .16, p < .01).

Furthermore, we found that adolescents' need for popularity is positively related with their attitude (β = .19, p < .01), subjective norm (β = .24, p < .001), prototype favourability (β = .24, p = .001) and prototype similarity (β = .26, p < .001), thus confirming H8a-H8d.

With regard to the covariates, sex was significantly related to willingness (β = -.27, p < .001) and intention (β = -.12, p < .01), suggesting that female students are less willing and have less intention to send sexting messages. Results further revealed that sex was significantly related to attitude (β = -.30, p < .001), subjective norm (β = -.26, p < .001), prototype favourability (β = -.28, p < .001), prototype similarity (β = -.21, p < .01) and need for popularity (β = -.16, p < .01), suggesting that female adolescents have lower scores on these predictors compared to men. Finally, age was not significantly related to any of the study variables.

ACCEPTED MANUSCRIPT

5. Discussion

Adolescents have always explored their sexuality and shared these experiences with others. As mobile phones are youngsters' favourite medium, intimacy and sexual interest are also expressed through mobile communication. Sexting can therefore be seen as a novel expression of sexual agency (Angelides, 2013). It can be recognised as a facet of youth culture, related to more traditional forms of sexual self-expression and adolescents' socialisation (Campbell and Park, 2014).

As peer influence is key during adolescence, the present study wanted to investigate how, next to individual attitudes and perceived social norms, the images adolescents hold of people engaging in sexting possibly influence their behaviour. Therefore, the present study applied the prototype willingness model to include both a reasoned path and a social reaction path to explain adolescent sexting. Moreover, current literature on sexting is dominated by US studies (Döring, 2014). As cultural norms and legal systems differ, the present study adds to the literature by investigating sexting in a European country.

Our results show that the perceived social norm is the most important predictor of sexting intentions. This corresponds with earlier qualitative research unravelling the group dynamics which may occur in sexting episodes (Lippman and Campbell, 2014; Ringrose et al., 2013). Moreover, longitudinal research found that descriptive norms (i.e., individuals' perception of what peers actually do) were more important in explaining risky online sexual behaviours than injunctive norms (i.e., others' approval of the behaviour). Believing that peers perform this behaviour (i.e., the perceived social norm) could suggest that sexting is acceptable and could inspire others to engage in it

ACCEPTED MANUSCRIPT

(Baumgartner et al., 2011). Information and prevention campaigns could therefore focus on perceived social norms by giving youth a strong signal that sexting is not normative among adolescents. Campaigns could do so by providing information on prevalence rates detected by conducting international comparative and longitudinal research based on representative samples of youth. This could alter a kind of 'false consensus effect', where adolescents perceive sexting as quite common among peers (Lippman and Campbell, 2014).

Next to subjective norm, adolescents' attitudes towards sexting and images they hold of peers engaging in it influence their intention to send sexting messages. As has been suggested by qualitative research (Lippman and Campbell, 2014), perceiving oneself as being similar to a person who sends sexting messages, or wanting to resemble this kind of person, may increase the likelihood to engage in this behaviour. One factor that might play an important role in shaping adolescents' attitudes about sexting is the increasing sexualisation of popular culture (Chalfen, 2009). This occurs in music videos and advertising as well as media publicity around sexy selfies of celebrities. Next to mainstream entertainment, one study among young adults found that pornography viewing was related to engagement in sexting (Crimmins and Siegfriend-Spellar, 2014). Therefore, future research could further investigate how adolescents' media use relates to their sexting behaviour (Chalfen, 2010). More particularly, it could be further investigated how the consumption of sexualised media content can impact mediatised sexual behaviours such as sexting. A cross-sectional study among adolescents already found an association between pornography use and sexting behaviour (Van Ouytsel et al., 2014a). Longitudinal research could further unravel how different media contents

ACCEPTED MANUSCRIPT

(such as music videos and pornography) possibly impact young people's own sexting behaviours.

By investigating images young people have of individuals engaging in sexting, the present study can inspire awareness-raising efforts, as the PWM focusses not only on attitudes and norms but also on characteristics of prototypes of teens who send sexting messages. Moreover, discussing the motives and possible consequences of sexting could be part of adolescents' sex education. Especially, adolescents' competences to resist peer pressure could be refined, as the importance of peer influence is stressed by the present study's observed impact of the subjective norm. Additionally, the importance of not breaching a person's trust when sexting messages are exchanged could be stressed. In sum, sexting itself should not be banned, as it can form an important expression of sexuality and intimacy. Conversely, how young people may minimise risks of abuse of intimate messages should be part of educational efforts. In this, the role of bystanders is also crucial. Qualitative research found that some young men chose to be complicit by spreading leaked sexting messages, while others felt discomfort or challenged the sharing of these intimate pictures (Walker et al., 2013). Another qualitative study reported cases of adolescents taking measures to ensure that the sexting picture of a friend was not spread further (Černiková and Barbovschi, 2014). Therefore, adolescents should be sensitised about their role as bystander (Walker et al., 2013). Both girls and boys may be informed about their responsibilities when receiving an intimate picture and the (legal) consequences of forwarding it. The possession and diffusion of pictures of denuded minors can, for instance, in the United States, prompt criminal charges based on several legislations concerning child pornography (Hinduja and Patchin, 2014; Spooner and Vaughn, 2014; Strohmaier et al., 2014). In Europe,

ACCEPTED MANUSCRIPT

several conventions (Council of Europe, 2001; Council of Europe, 2007) and a European directive (European Parliament and Council, 2011) contain provisions on child pornography. From their definition of child pornography, sexting can fall within the scope of their application. Still, member states can decide to exclude sexting between minors from their child pornography legislation if the minors have reached the age of sexual consent and only in cases where minors produce or possess sexting images (not, for instance, if they distribute these messages) (Lievens, 2014). Moreover, sexting pictures, but also text messages, can be interpreted as personal information protected by data protection legislation (based on the European Data Protection Directive, European Parliament and Council, 1995). By consequence, the unwilling dissemination of intimate messages may be prosecuted based on data protection legislation (Lievens, 2014). Therefore, prevention aimed at adolescents could also stress the legal facets of sexting.

In addition to informing students about the possible legal consequences of sexting and, especially, the dissemination of these intimate messages, adolescents could be sensitised to the alternative roles they can play as 'bystanders' of sexting. They should be empowered to function as a *defender* of the person whose picture is disseminated instead of being the *assistant* of the peer that spreads the sexting message among audiences that were not intended by the depicted person. Therefore, just as in (cyber)bullying interventions (Salmivalli et al., 2011), the pivotal role of a *defending* bystander should be stressed when sexting is discussed at school (Van Ouytsel et al., 2014d). More particularly, when cyberbullying prevention programmes accentuate the severity of the consequences for the victim, bystanders are more inclined to support the victim (Bastiaensens et al., 2014; DeSmet et al., 2013). Just as with cyberbullying, the

ACCEPTED MANUSCRIPT

bystander approach can also be used to slow down the dissemination of sexting messages. As sexting can spread rapidly, adolescents need to be taught how to resist peer pressure to engage in disclosing a sexting message or participating in its dissemination. Moreover, intervention programmes could increase young people's knowledge and skills to assist a victim of cyberbullying, as bystanders declare they lack the competences to help (Van Cleemput et al., 2014).

As peer relations and popularity among the peer group is important for some youth, this study also assessed the possible influence of students' desire for popularity. Adolescents in search of approval from their peers were found to share a more favourable attitude and subjective norm towards sexting. They also felt they resembled more the prototype of adolescents engaging in sexting and evaluated the prototype more positively. As being sexually active can be seen as a behaviour that increases a teen's status in the peer group (Miller and Benson, 1999), exchanging sexting messages could be influenced by this desire and overshadow young people's fears of possible drawbacks. This need for popularity among peers could therefore explain adolescents' engagement in sexting. In addition to being fuelled by a need for popularity, sexting can, in some circumstances, occur under coercion. In such situations, young people are not equal when confronted with risks related to sexting. How exposure to a risk may lead to harm depends on a range of individual characteristics, including a child's or adolescent's resilience. In brief, resilience refers to "the process of, capacity for or outcome of successful adaptation despite challenging or threatening circumstances" (Masten et al., 1990, p. 426). More particularly, online resilience can be seen as one's ability to deal with a negative online experience by engaging in coping strategies that are problem solving with the aim to protect oneself from harm (Vandoninck et al., 2013). Young people

ACCEPTED MANUSCRIPT

differ in their responses towards online adversities in general and sexting-related risks in particular. In sum, two types of coping strategies can be discerned: While primary strategies focus on trying to change or solve a situation, secondary strategies concentrate on accommodating to the situation (Compas and Reeslund, 2009; Weiner, 2003). In the case of sexting, one study found that, while some talk to others after receiving a disturbing sexting message or engage in specific (problem-solving) coping behaviours (such as deleting the message or blocking the sender of the sexting message), others adopt a fatalistic attitude (Vandoninck et al., 2012). Future research could therefore investigate how young people, being pressured into sexting, receiving an unwanted sexting message or being the victim of a sexting-related incident, cope with this situation. In the same vein, research could examine how this experience is related to negative feelings and other forms of (psychological) harm.

The present study also found that being romantically involved significantly affected the key components of the PWM. Young people involved in a relationship scored higher on attitude, shared a more positive subjective norm and assessed the prototype more favourably than single youth. This corresponds with earlier research among young adults observing that individuals in a relationship are more likely to engage in sexting (Samimi and Alderson, 2014; Temple et al., 2012; Weisskirch and Delevi, 2011) and that sexting is used by couples to sustain intimacy (Albury and Crawford, 2012).

Regarding the covariates, female adolescents were found to be less intended or willing to send sexting messages. Also, the scores on the other PWM constructs were lower for female respondents, indicating a less favourable attitude, subjective norm, appreciation of, and similarity with the prototype of an adolescent engaging in this behaviour. This

ACCEPTED MANUSCRIPT

echoes research among adults that found women were more concerned about the negative consequences than men (Samimi and Alderson, 2014). This can be further contextualised by qualitative research where girls who engaged in sexting were found to be given unflattering names in the peer group (Ringrose et al., 2013). Therefore, engaging in sexting practises would induce more reputational risks for girls. Nevertheless, although girls share a more negative attitude towards sexting than boys, some engage in this behaviour. This could be linked to their relational context. The trust placed in their partner might overshadow the perceived risk of their sexting message being shared with others during the relation or after a possible break-up. Another explanation is that some girls engaging in sexting are put under pressure by their partner to send this kind of message (Walker et al., 2013). This could be part of a larger pattern of sexual coercion. Therefore, nonconsensual sexting could be indicative of forms of relational abuse (Perkins et al., 2013; Zweig et al., 2014). Future research could thus investigate how some forms of sexting possibly occur within the context of (cyber)dating abuse.

Notwithstanding its results, this study is characterised by several limitations. The foremost weakness of this study is its cross-sectional nature. Future research could shed new light on how attitudes, norms and images of peers involved in sexting evolve over time and how this possibly influences respondents' actual sexting behaviours.

Another weakness of the study is that it only assessed the opinions and experiences of older adolescents. However, images young people have of adolescents who send sexting messages could develop at an earlier age. Therefore, future research could include younger teenagers to assess their predisposition to engage in sexting by applying the PWM. Indeed, one of the advantages of the PWM is that it offers the opportunity to

ACCEPTED MANUSCRIPT

assess a predisposition, a "pre-intentional tendency to engage in risky behaviors" (Gerrard et al., 2005, p. 307). This could offer new insights into which aspects influence young adolescents' likelihood to engage in this kind of sensitive self-disclosure. Moreover, some researchers have noticed among young teenagers the occurrence of 'pre-sexting': instead of explicit pictures, sexually suggestive messages are sent (Lippman and Campbell, 2014). Future research could investigate motives and consequences of pre-sexting at an earlier age.

Besides, future research could incorporate a finer-grained typology of several sexting behaviours. Most studies to date are difficult to compare due to definitional and sampling differences (Agustina and Gómez-Durán, 2012). Incorporating a typology that differentiates forms of sexting (Wolak et al., 2012) would shed more light on the different shades of risk that some messages include. Moreover, different types of sexting could be linked with psychological and behavioural characteristics to investigate the possible impact of particular sexting types. Correspondingly, the association of sexting with offline (sexual) risk behaviour needs further investigation, as previous research found interrelations (Baumgartner et al., 2012; Rice et al., 2014). To unravel causes and consequences of sexting, more longitudinal research is needed among representative samples of youth. By integrating personality traits and online and offline (risk) behaviours, future research could help educators and policy makers identify who is at risk and how to engage them in educational and prevention efforts (Crimmins and Siegfriend-Spellar, 2014). Additionally, qualitative research may offer more insight into motives and consequences of sexting. Part of the risk of sexting can be linked to the type of recipient of the sexting message. Research could therefore concentrate on which kinds of sexting messages are exchanged in which types of relationships, e.g., long-term

ACCEPTED MANUSCRIPT

partnership versus new (online) contact or even chatting with strangers (Benotsch et al., 2012; Crimmins and Siegfriend-Spellar, 2014).

Finally, experimental research could test possible interventions to sensitise young people to sexting consequences and how to deal with the spreading of a sexting message (Van Ouytsel et al., 2014d). Several educational and prevention campaigns exist, but they need to be systematically reviewed for their impact (Döring, 2014). These prevention and intervention activities could also be part of educational efforts that would include sexting in sexual health education and scholarly activities devoted to online safety. These educational initiatives could incorporate the emotional, social and legal consequences of engaging in sexting (Rice et al., 2014). In this context, young people could be informed about the sexualisation of media content, the sexual double standard and victim blaming that sometimes occurs in sexting incidents (Döring, 2014). As sexting sometimes results from peer or partner pressure, young people's competency to deal with this pressure could be enhanced. But also, if one (willingly) engages in sexting, a safer sexting approach could be recommended, for instance within sex education programmes (Van Ouytsel et al., 2014d). Instead of promoting sexting abstinence, some safety measures could be addressed, such as reciprocity when sexting or anonymizing sexting images (for instance, not showing your face or other identifying characteristics) (Döring, 2014). Still, adolescents need to be informed about the particular properties of digital data, namely, amongst others, their easy reproducibility and spreadability (boyd, 2010). This could augment their insight into the nature of digital data and the possible consequences of sharing intimate details. In sum, school prevention efforts could have different touchdown points: relational aspects and peer pressure could be addressed in health classes, while technology classes could highlight safety measures and raise young people's awareness of the nature of digital data.

ACCEPTED MANUSCRIPT

Additionally, school counsellors and other team members such as school nurses or psychologists could address related issues in their conversations with pupils (Harris and Davidson, 2014). Schools also need to have a contingency plan in place that addresses, amongst other things, abusive forms of sexting (Van Ouytsel et al., 2014d). Information needs to be provided on how victims of sexting abuse, and other forms of (online) victimisation, can be assisted and to whom they may turn to for support at school. Adolescents could also be encouraged to act when a sexting incident occurs. The steps they can take to stop the spreading of a message (as a victim or a bystander) through social network sites could be discussed in class (e.g., by explaining procedures social network sites put in place to report abuse). By multiplying opportunities to address sexting-related issues, adolescents can be informed and sensitised.

References

Agustina J., Gómez-Durán E., 2012. Sexting: Research Criteria of a Globalized Social Phenomenon. Archives of Sexual Behavior. 41, 1325-1328.

Albury K., Byron P., 2014. Queering sexting and sexualisation. Media International Australia, incorporating culture & policy. . 138-147.

Albury K., Crawford K., 2012. Sexting, consent and young people's ethics: Beyond Megan's Story. Continuum. 26, 463-473.

Angelides S., 2013. Technology, hormones, and stupidity: The affective politics of teenage sexting. Sexualities. 16, 665-689.

Bastiaensens S., Vandebosch H., Poels K., Van Cleemput K., DeSmet A., De Bourdeaudhuij I., 2014. Cyberbullying on social network sites. An experimental study into bystanders' behavioural intentions to help the victim or reinforce the bully. Computers in Human Behavior. 31, 259-271.

Baumgartner S., Valkenburg P.M., Peter J., 2011. The Influence of Descriptive and Injunctive Peer Norms on Adolescents' Risky Sexual Online Behavior. Cyberpsychology, Behavior, and Social Networking. 14, 753-758.

Baumgartner S.E., Sumter S.R., Peter J., Valkenburg P.M., 2012. Identifying Teens at Risk: Developmental Pathways of Online and Offline Sexual Risk Behavior. Pediatrics.

Baumgartner S.E., Sumter S.R., Peter J., Valkenburg P.M., Livingstone S., 2014. Does country context matter? Investigating the predictors of teen sexting across Europe. Computers in Human Behavior. 34, 157-164.

Benotsch E.G., Snipes D.J., Martin A.M., Bull S.S., 2012. Sexting, Substance Use, and Sexual Risk Behavior in Young Adults. The Journal of adolescent health : official publication of the Society for Adolescent Medicine.

ACCEPTED MANUSCRIPT

Bond E., 2011. The mobile phone = bike shed? Children, sex and mobile phones. New Media & Society. 13, 587-604.
boyd D., 2010l. Social network sites as networked publics: Affordances, dynamics, and implications., in: Papacharissi Z editor, Networked self: Identity, community, and culture on social network sites. Routledge, New York, pp. 39-58.
Brechwald W.A., Prinstein M.J., 2011. Beyond Homophily: A Decade of Advances in Understanding Peer Influence Processes. Journal of Research on Adolescence. 21, 9.
Břízová B., Miltnerová K., 2014. Sexting experience of adolescent children. Journal of Nursing, Social Studies, Public Health and Rehabilitation. 1-2, 23-33.
Campbell S.W., Park Y.J., 2014. Predictors of mobile sexting among teens: Toward a new explanatory framework. Mobile Media & Communication. 2, 20-39.
Černiková M., Barbovschi M., 2014l. Dealing with problematic situations involving sexual content and communication. , in: Smahel D, Wright MF editors, The meaning of online problematic situations for children: results of qualitative cross-cultural investigation in nine European countries. London School of Economics and Political Science., London, pp. 101-105.
Chalfen R., 2009. 'It's only a picture': sexting, 'smutty' snapshots and felony charges 1. Visual Studies. 24, 258-268.
Chalfen R., 2010. Commentary Sexting as Adolescent Social Communication. . Journal of Children and Media. 4, 350-354.
Cohen G.L., Prinstein M.J., 2006. Peer contagion of aggression and health-risk behavior among adolescent males: An experimental investigation of effects on public conduct and private attitudes. Child Development. 77, 17.
Collins W.A., Steinberg L., 2006l. Adolescent development in interpersonal context. , in: Damon W, Lerner R, Eisenberg N editors, Handbook of Child Psychology: Social, emotional, and personality development. Wiley, New York, pp. 1003-1067.
Compas B.E., Reeslund K.L., 2009l. Processes of risk and resilience during adolescence., in: Lerner RM, Steinberg L editors, Handbook of adolescent psychology. . Wiley, Hoboken, pp. 561-588.
Crimmins D.M., Siegfriend-Spellar K.C., 2014. Peer attachment, sexual experiences, and risky online behaviors as predictors of sexting behaviors among undergraduate students. . Computers in Human Behavior. 32, 268-275.
Dake J.A., Price J.H., Maziarz L., Ward B., 2012. Prevalence and Correlates of Sexting Behavior in Adolescents. American Journal of Sexuality Education. 7, 1-15.
DeSmet A., Veldeman C., Poels K., Bastiaensens S., Van Cleemput K., Vandebosch H., De Bourdeaudhuij I., 2013. Determinants of Self-Reported Bystander Behavior in Cyberbullying Incidents Amongst Adolescents. Cyberpsychology, Behavior, and Social Networking. 17, 207-215.
Dir A.L., Cyders M.A., Coskunpinar A., 2013. From the bar to the bed via mobile phone: A first test of the role of problematic alcohol use, sexting, and impulsivity-related traits in sexual hookups. Computers in Human Behavior. 29, 1664-1670.
Döring N., 2014. Consensual sexting among adolescents: Risk prevention through abstinence education or safer sexting? Cyberpsychology: Journal of Psychosocial Research on Cyberspace. 8.
Draper N.R.A., 2011. Is your teen at risk? Discourses of adolescent sexting in United States television news. Journal of Children and Media. 6, 221-236.

ACCEPTED MANUSCRIPT

Drouin M., Vogel K.N., Surbey A., Stills J.R., 2013. Let's talk about sexting, baby: Computer-mediated sexual behaviors among young adults. Computers in Human Behavior. 29, A25-A30.
Feeney J.A., Noller P., 2004l. Attachment and sexuality in close relationships. , in: Harvey JH, Venzel A, Sprecher S editors, The handbook of sexuality in close relationships. Psychology Press, pp. 183-201.
Ferguson C.J., 2011. Sexting behaviors among young Hispanic women: Incidence and association with other high-risk sexual behaviors. Psychiatric quarterly. 82, 239-243.
Gerrard M., Gibbons F.X., Houlihan A.E., Stock M.L., Pomery E.A., 2008. A dual-process approach to health risk decision making: The prototype willingness model. Developmental Review. 28, 32.
Gerrard M., Gibbons F.X., Stock M.L., Vande Lune L.S., Clevelend M.J., 2005. Images of Smokers and Willingness to Smoke Among African American Pre-adolescents: An Application of the Prototype/Willingness Model of Adolescent Health Risk Behavior to Smoking Initiation. Journal of Pediatric Psychology. 30, 305-318.
Gibbons F.X., Gerrard M., 1995. Predicting Young Adults' Health Risk Behavior. Journal of Personality and Social Psychology. 69, 13.
Gibbons F.X., Gerrard M., Blanton H., Russell D.W., 1998. Reasoned action and social reaction: Willingness and intention as independent predictors of health risk. Journal of Personality and Social Psychology. 74, 1164-1180.
Gibbons F.X., Gerrard M., Lane D.J., 2003l. A social reaction model of adolescent health risk., in: Suls JM, Wallston KA editors, Social psychological foundations of health and illness. Blackwell, Malden, MA, pp. 107-136.
Harris A.J., Davidson J., 2014l. Teens, sex, and technology: implications for educational systems and practice. , in: Saleh. FM, Grudzinskas A, Judge AM editors, Adolescent sexual behavior in the difgital age. Oxford University Press, New York, pp. 262-292.
Hasinoff A.A., 2013. Sexting as media production: Rethinking social media and sexuality. New Media & Society. 15, 449-465.
Hinduja S., Patchin J.W. State sexting laws. A brief review of state sexting laws and policies (September 2014). Cyberbullying Research Center.; 2014.
Houck C.D., Barker D., Rizzo C., Hancock E., Norton A., Brown L.K., 2014. Sexting and sexual behavior in at-risk adolescents. Pediatrics. 133, e276–e282.
Johnson S., Zuccarini D., 2012. Integrating sex and attachment in emotionally focused couple therapy. . Journal of marital & family therapy. 36, 15.
Kaestle C.E., Tucker Halpern C., 2007. What's love got to do with It? Sexual behaviors of opposite-sex couples through emerging adulthood. Perspectives on Sexual and Reproductive Health. 39, 7.
Kisler T.S., Christopher F.S., 2008. Sexual exchanges and relationship satisfaction: Testing the role of sexual satisfaction as a mediator and gender as a moderator. Journal of Social and Personal Relationships. 25, 587-602.
Lee C.-H., Moak S., Walker J.T., 2013. Effects of Self-Control, Social Control, and Social Learning on Sexting Behavior Among South Korean Youths. Youth & Society.
Lenhart A. Teens and Sexting. Pew Internet; 2009. p. 26.
Lievens E., 2014. Bullying and sexting in social networks: Protecting minors from criminal acts or empowering minors to cope with risky behaviour? International Journal of Law, Crime and Justice. 42, 251-270.

ACCEPTED MANUSCRIPT

Lippman J.R., Campbell S.W. Teenagers and Sexting: Perceived Norms and Sexual Double Standard. ICA. Phoenix, AZ; 2012a.
Lippman J.R., Campbell S.W. Teenagers and sexting: Perceived norms and sexual double standarded. ICA. Phoenix, AZ; 2012b. p. 32.
Lippman J.R., Campbell S.W., 2014. Damned if you do, damned if you don't…if you're a girl: Relational and normative contexts of adolescent sexting in the United States. Journal of Children and Media.
Masten A.S., Best K.M., Garmezy N., 1990. Resilience and development: Contributions from the study of children who overcome adversity. . Development and Psychopathology. 2, 425-444.
Miller B.C., Benson B., 1999l. Romantic and Sexual Relationship Development During Adolescence. in: Furman W, Brown BB, Feiring C editors, The Development of Romantic Relationships in Adolescence. Cambridge University Press, Cambridge, pp. 99-121.
Parker T.S., Blackburn K.M., Perry M.S., Hawks J.M., 2013. Sexting as an Intervention: Relationship Satisfaction and Motivation Considerations. The American Journal of Family Therapy. 14, 1-12.
Perkins A.B., Becker J.V., Tehee M., Mackelprang E., 2013. Sexting Behaviors Among College Students: Cause for Concern? International Journal of Sexual Health. 26, 79-92.
Renfrow D.G., Rollo E.A., 2014. Sexting on Campus: Minimizing Perceived Risks and Neutralizing Behaviors. Deviant Behavior. 35, 903-920.
Rice E., Gibbs J., Winetrobe H., Rhoades H., Plant A., Montoya J., Kordic T., 2014. Sexting and Sexual Behavior Among Middle School Students. Pediatrics. 134.
Rice E., Rhoades H., Winetrobe H., Sanchez M., Montoya J., Plant A., Kordic T., 2012. Sexually Explicit Cell Phone Messaging Associated With Sexual Risk Among Adolescents. Pediatrics.
Ringrose J., Gill R., Livingstone S., Harvey L., 2012. A qualitative study of children, young people and'sexting': a report prepared for the NSPCC.
Ringrose J., Harvey L., Gill R., Livingstone S., 2013. Teen girls, sexual double standards and 'sexting': Gendered value in digital image exchange. . Feminist Theory. 14, 19.
Salmivalli C., Voeten M., Poskiparta E., 2011. Bystanders Matter: Associations Between Reinforcing, Defending, and the Frequency of Bullying Behavior in Classrooms. Journal of Clinical Child and Adolescent Psychology. 40, 668-676.
Samimi P., Alderson K.G., 2014. Sexting among undergraduate students. Computers in Human Behavior. 31, 230-241.
Santor D.A., Messervey D., Kusumakar V., 2000. Measuring peer pressure, popularity, and conformity in adolescent boys and girls: predicting school performance, sexual attitudes, and substance use. Journal of youth and adolescence. 29, 163-182.
Simpson B., 2013. Challenging childhood, challenging children: Children's rights and sexting. Sexualities. 16, 690-709.
Šmahel D., Subrahmanyam K., 2014l. Adolescent sexuality on the Internet: A developmental perspective. , in: Saleh. FM, Grudzinskas A, Judge AM editors, Adolescent sexual behavior in the digital age. Oxford University Press, Oxford, pp. 62-85.
Spooner K., Vaughn M., 2014. Youth Sexting: A Legislative and Constitutional Analysis. Journal of School Violence. 1-21.

ACCEPTED MANUSCRIPT

Strohmaier H., Murphy M., DeMatteo D., 2014. Youth Sexting: Prevalence Rates, Driving Motivations, and the Deterrent Effect of Legal Consequences. Sexuality Research and Social Policy. 11, 245-255.
Temple J.R., Le V.D., van den Berg P., Ling Y., Paul J.A., Temple B.W., 2014. Brief report: Teen sexting and psychosocial health. Journal of Adolescence. 37, 33-36.
Temple J.R., Pau l.J.A., van den Berg P., Vi Donna L., McElhany A., Temple B.W., 2012. Teen sexting and its association with sexual behaviors. Archives of Pediatrics & Adolescent Medicine. Online First, 1-6.
Valkenburg P.M., Peter J., 2011. Online Communication Among Adolescents: An Integrated Model of Its Attraction, Opportunities, and Risks. Journal of Adolescent Health. 48, 121-127.
Van Cleemput K., Vandebosch H., Pabian S., 2014. Personal characteristics and contextual factors that determine “helping,” “joining in,” and “doing nothing” when witnessing cyberbullying. Aggressive Behavior. 40, 383-396.
Van Ouytsel J., Ponnet K., Walrave M., 2014a. The Associations Between Adolescents' Consumption of Pornography and Music Videos and Their Sexting Behavior. Cyberpsychology, Behavior, and Social Networking. 17, 772-778.
Van Ouytsel J., Van Gool E., Ponnet K., Walrave M., 2014b. Brief report: The association between adolescents' characteristics and engagement in sexting. Journal of Adolescence. 37, 1387-1391.
Van Ouytsel J., Walrave M., Ponnet K., Heirman W., 2014c. The Association Between Adolescent Sexting, Psychosocial Difficulties, and Risk Behavior: Integrative Review. The Journal of School Nursing. 16.
Van Ouytsel J., Walrave M., Van Gool E., 2014d. Sexting: Between thrill and fear—How schools can respond. The Clearing House: A Journal of Educational Strategies, Issues and Ideas. 87, 204-212.
Vanden Abeele M., Campbell S.W., Eggermont S., Roe K., 2014. Sexting, Mobile Porn Use, and Peer Group Dynamics: Boys' and Girls' Self-Perceived Popularity, Need for Popularity, and Perceived Peer Pressure. Media Psychology. 17, 6-33.
Vandoninck S., d'Haenens L., 2014l. Preventive measures: ways to avoid problematic situations and negative experiences online., in: Smahel D, Wright MF editors, The meaning of online problematic situations for children. EU Kids Online, London School of Economics and Political Sciences. , London, pp. 77-94.
Vandoninck S., d'Haenens L., Roe K., 2013. Online Risks. Coping strategies of less resilient children and teenagers across Europe. . Journal of Children and Media. 7, 60-78.
Vandoninck S., d'Haenens L., Segers K., 2012l. Coping and resilience: Children's responses to online risks., in: S. L, L. H, A. G editors, Children, risk and safety on the Internet. Research and policy challenges in comparative perspective. The Policy Press, Bristol, pp. 205-218.
Walker S., Sanci L., Temple-Smith M., 2013. Sexting: Young Women's and Men's Views on Its Nature and Origins. The Journal of adolescent health : official publication of the Society for Adolescent Medicine. 52, 697-701.
Walrave M., Heirman W., Hallam L., 2014. Under pressure to sext? Applying the theory of planned behaviour to adolescent sexting. Behaviour & Information Technology. 33, 86-98.
Weiner I.B. Handbook of psychology. Hoboken, Wiley; 2003.

ACCEPTED MANUSCRIPT

Weisskirch R.S., Delevi R., 2011. ‘‘Sexting’’ and adult romantic attachment. Computers in Human Behavior. 27, 1697-1701.
Willard N.E., 2010. Sexting and Youth: Achieving a Rational Response. Journal of Social Sciences. 6, 542-562.
Wolak J., Finkelhor D., Mitchell K.J., 2012. How Often Are Teens Arrested for Sexting? Data From a National Sample of Police Cases. Pediatrics. 129, 4-12.
Yeung T.H., Horyniak D.H., Vella A.M., Hellard M.E., Lim M.S.C., 2014. Prevalence, correlates and attitudes towards sexting among young people in Melbourne, Australia. Sexual Health. 11, 332-339.
Zweig J.M., Lachman P., Yahner J., Dank M., 2014. Correlates of cyber dating abuse among teens. Journal of Youth and Adolescence. 43, 1306-1321.

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

Table 1. Descriptives of the study variables.

		M	SD
Item 1	At times, I have ignored some people, in order to be more popular with others.	2.23	1.35
Item 2	I'd do almost anything to avoid being seen as a 'loser'.	2.50	1.34
Item 3	It's important that people think I'm popular.	2.40	1.26
Item 4	At times, I've gone out with people, just because they were popular.	2.04	1.78
Item 5	At times, I've changed the way I dress in order to be more popular.	2.07	1.15
Item 6	I've been friends with some people, just because others liked them.	1.86	1.08
Item 7	I've gone to parties, just to be part of the crowd.	2.02	1.26
Item 8	I often do things just to be popular with people at school.	1.79	1.07
Attitude			
Item 1	Not funny - funny	2.90	2.03
Item 2	Stupid - not stupid	2.17	1.62
Item 3	Not amusing - amusing	3.08	2.13
Item 4	Harmful - not harmful	2.58	1.80
Item 5	Not normal - normal	2.91	1.87
Subjective norm			
Item 1	In general, I believe that most people would not mind if I engage in sexting.	2.48	1.44
Item 2	Most people who are important in my life would approve if I send a sexting message.	2.05	1.28
Item 3	My parents would approve if I send a sexting message.	1.55	.90
Item 4	Most people who are important in my life have engaged in sexting.	2.15	1.43
Item 5	My friends would approve if I engage in sexting.	2.54	1.55
Item 6	My partner would approve if I engage in sexting.	2.43	1.69
Prototype			
Item 1	Smart	2.80	1.72
Item 2	Cool	2.70	1.72
Item 3	Self-confident	4.28	2.03

ACCEPTED MANUSCRIPT

Item 4	Popular	3.35	1.72
Item 5	Funny	3.39	1.78
Item 6	Able to have a lot of romantic partners.	3.61	1.94
Prototype similarity			
In general, how similar do you think you are to this type of person who sends a sexting message?		2.12	1.50
Willingness			
Item 1	Friend: Given the situation, I would send the picture.	1.26	.58
Item 2	Friend: I would question the situation, but eventually send the picture.	1.35	.76
Item 3	Romantic partner: In that situation, I would send the picture.	1.89	1.12
Item 4	Romantic partner: I would question the situation, but eventually send the picture.	1.93	1.13
Intention			
Item 1	There is a chance that I will in engage in sexting in the next two months.	2.15	1.57
Item 2	I plan on engaging in sexting in the next two months.	1.87	1.38
Item 3	I want to engage in sexting during the next two months.	1.89	1.41
Item 4	I intend to engage in sexting in the next two months.	1.74	1.28
Sexting			
Item 1	Did you engage in sexting during the past two months?	1.36	.83
Item 2	How often do you engage in sexting?	1.43	.92
Item 3	How often have you engaged in sexting in the past?	1.44	.98

ACCEPTED

ACCEPTED MANUSCRIPT

Table 2. Measurement model: Standardized and unstandardized parameter estimates.

Observed variable	Latent construct	β	B	Two-tailed p-value
item1_pop	Need for popularity	.630	1,000	.000
item2_pop	Need for popularity	.635	1,000	.000
item3_pop	Need for popularity	.772	1,120	.000
item4_pop	Need for popularity	.763	1,056	.000
item5_pop	Need for popularity	.769	1,037	.000
item6_pop	Need for popularity	.749	.946	.000
item7_pop	Need for popularity	.667	.986	.000
item8_pop	Need for popularity	.716	.905	.000
item1_att	Attitude	.861	1,000	.000
item2_att	Attitude	.874	.808	.000
item3_att	Attitude	.646	.785	.000
item4_att	Attitude	.784	.809	.000
item5_att	Attitude	.892	.954	.000
item1_norm	Subjective norm	.595	1,000	.000
item2_norm	Subjective norm	.751	1,117	.000
item3_norm	Subjective norm	.644	.673	.000
item4_norm	Subjective norm	.745	1,241	.000
item5_norm	Subjective norm	.863	1,558	.000
item6_norm	Subjective norm	.683	1,345	.000
item1_prototype	Prototype favorability	.764	1,000	.000
item2_prototype	Prototype favorability	.791	1,033	.000
item3_prototype	Prototype favorability	.530	.814	.000
item4_prototype	Prototype favorability	.665	.867	.000
item5_prototype	Prototype favorability	.657	.888	.000
item6_prototype	Prototype favorability	.595	.875	.000
item1_willingness	Willingness	.652	1,000	.000
item2_willingness	Willingness	.582	1,167	.000
item3_willingness	Willingness	.778	2,291	.000
item4_willingness	Willingness	.634	1,881	.000
item1_intent	Intention	.833	1,000	.000
item2_intent	Intention	.951	1,002	.000
item3_intent	Intention	.976	1,048	.000
item4_intent	Intention	.924	.901	.000
item1_behavior	Sexting	.885	1,000	.000

ACCEPTED MANUSCRIPT

item2_behavior	Sexting	.971	1,209	.000
item3_behavior	Sexting	.905	1,205	.000

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

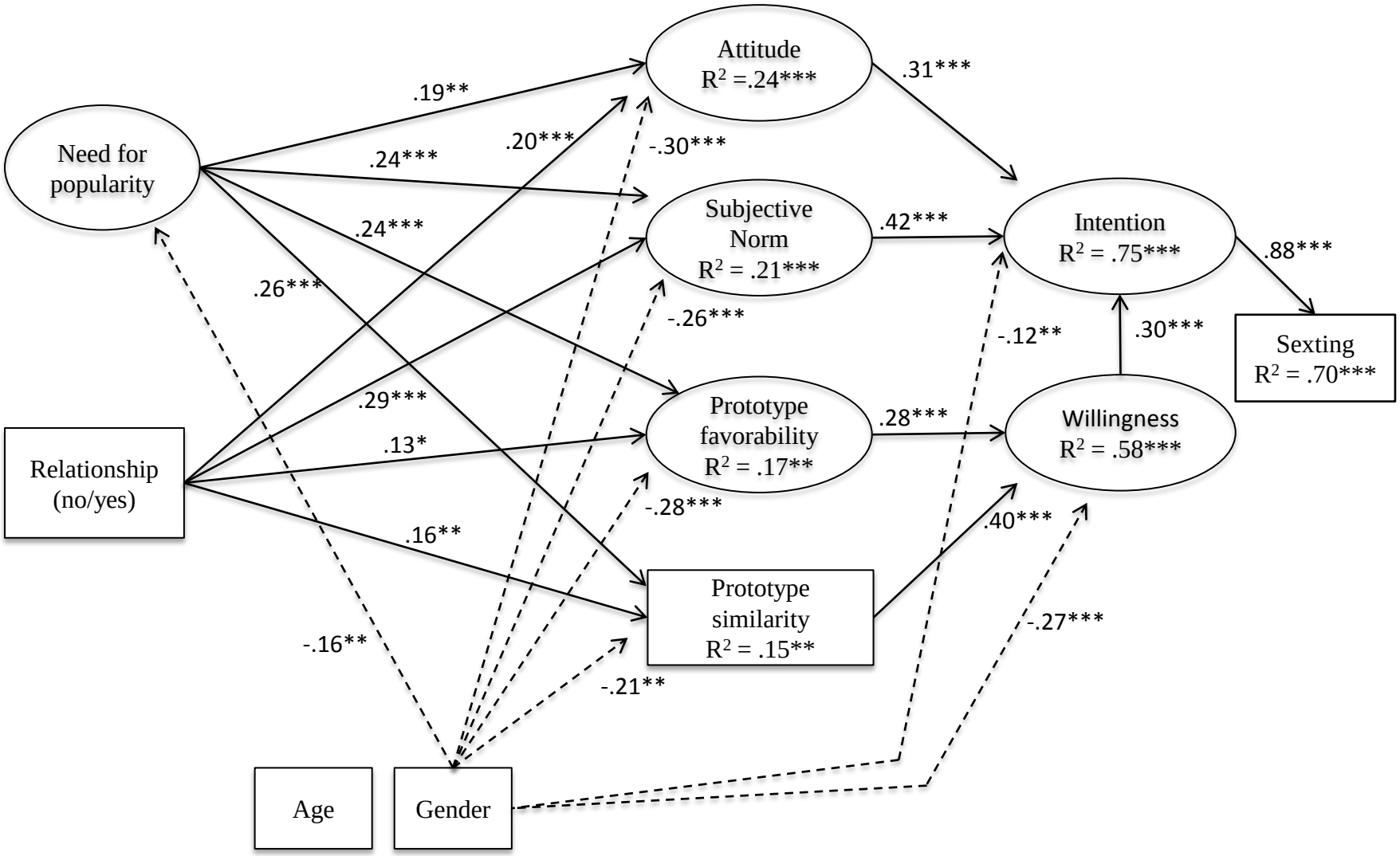
Table 3. Correlations among the constructs.

		1	2	3	4	5	6	7
1	Need for popularity							
2	Attitude	.26**						
3	Subjective norm	.28**	.84**					
4	Prototype favorability	.28**	.66**	.71**				
5	Prototype similarity	.29**	.62**	.66**	.71**			
6	Willingness	.29**	.69**	.71**	.63**	.63**		
7	Intention	.27**	.80**	.82**	.60**	.70**	.72**	
8	Behavior	.12*	.67**	.64**	.42**	.58**	.57**	.84**

*p < .05, **p < .001

ACCEPTED MANUSCRIPT

Figure 1



Note.
$X^2(709)= 1248.11$, $p < .001$; CFI = .900; RMSEA = .059 ; SRMR = .063; All reported coefficients are standardized values.
Non-significant pathways are not included. *$p < .05$, **$p < .01$, ***$p < .001$

ACCEPTED MANUSCRIPT

Abstract

Sexting has received increasing scholarly and media attention. Especially, minors' engagement in this behaviour is a source of concern. As adolescents are highly sensitive about their image among peers and prone to peer influence, the present study implemented the prototype willingness model in order to assess how perceptions of peers engaging in sexting possibly influence adolescents' willingness to send sexting messages. A survey was conducted among 217 15- to 19-year-olds. A total of 18% of respondents had engaged in sexting in the two months preceding the study. Analyses further revealed that the subjective norm was the strongest predictor of sexting intention, followed by behavioural willingness and attitude towards sexting. Additionally, the more favourable young people evaluated the prototype of a person engaging in sexting and the higher they assessed their similarity with this prototype, the more they were willing to send sexting messages. Differences were also found based on gender, relationship status and need for popularity.

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

Keywords: Sexting; ICT; mobile phone; adolescents; prototype willingness model

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

Highlights

- This study applies the prototype willingness model to adolescents' sexting
- In total, 18% of respondents engaged in sexting
- Girls are less inclined to engage in sexting
- Subjective norm is the strongest predictor of young people's sexting intention
- Need for popularity is positively related to, amongst others, sexting attitudes

ACCEPTED MANUSCRIPT