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# Adolescent sexting from a social learning perspective

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## Adolescent sexting from a social learning perspective

### Abstract

Adolescents' sexting behavior is associated with serious health and social consequences. The purpose of this study is to analyze which components of the social learning theory are associated with adolescents' engagement in sexting amongst a sample of 357 respondents. Additionally, we distinguish between two types of online sexual self-disclosure: sexting within and outside of a romantic relationship. The results indicate that the extent to which adolescents hold positive attitudes towards the behavior and the extent to which they perceive that their peers approve of sexting, are associated with their engagement in sexting **both within and outside of a romantic relationship**, when controlling for age, gender, school track and internet use. **Sexting outside of a romantic relationship was also influenced by the thrill that young people get out of engaging in this behavior.** The discussion addresses the implications of these findings for prevention programs, practice and future research, such as the necessity for future studies to ask with whom participants have engaged in sexting.

### Keywords

sexting; adolescents; social learning theory; sexual risk behavior; sexual education

## 1. Introduction

Sexting can be broadly defined as the “sexually explicit content communicated via text messages, smart phones, or visual and web 2.0 activities such as social networking sites” (Ringrose et al., 2012: p. 9). The behavior has recently gained considerable research interest among practitioners and researchers because of the legal, health and social consequences that are associated with it (Van Ouytsel et al., 2014c). In the United States, for example, laws regarding sexting differ in each state and in some states sexting falls under child pornography laws (Hinduja and Patchin, 2013).

From a health perspective, multiple studies have found that adolescents’ engagement in sexting is associated with sexual (risk) behaviors and substance use (Dake et al., 2012; Houck et al., 2014; Temple and Choi, 2014; Temple et al., 2014; Temple et al., 2012). Furthermore, sexting has been linked with conduct problems such as delinquency (Lee et al., 2013). It has been tied to different psychological and emotional states among adolescents, such as depression (Van Ouytsel et al., 2014a), feeling afraid (Mitchell et al., 2012), feeling sad or hopeless (Dake et al., 2012) or contemplating suicide (Dake et al., 2012).

Engagement in sexting can also negatively affect adolescents in a social way. Several studies reported that girls sometimes felt put under pressure by their peers or romantic partner to engage in sexting (Ringrose et al., 2013; Walker et al., 2013). The main risk of engaging in sexting, is the possibility that the messages or images might be passed on by the recipient (Englander, 2015; Kopecký, 2015). This can be due to different motives, for example out of revenge after a romantic relationship went sour, to gain respect among peers or just for fun (Albury and Crawford, 2012; Bond, 2011; Lippman and Campbell, 2014). According to a study conducted by the Associated Press and MTV among a nationally representative sample of US youth, 17% of the respondents reported that they had forwarded the images to someone else. More than half of the respondents reported as reason the “assumption that others would

want to see them”, 35% quoted a “desire to show off” and 26% did so out of “boredom” (Associated Press and MTV, 2009: p. 3). When a sexting message or image spreads to an unintended audience, it can negatively affect the reputation of the sender and subsequently cause bullying and harassment (Ringrose et al., 2013; Wachs and Wolf, 2015; Walker et al., 2013). When this happens within the school community, adolescents’ engagement in sexting might be detrimental to the school climate and can negatively affect the school safety (Van Ouytsel et al., 2014c).

Sexting can play a role in adolescent development as it can help young people to explore their sexuality and develop their sexual identity (Walrave et al., 2015). Several scholars have argued that sexting can be studied as a form of deviant behavior (Reyns et al., 2014; Ricketts et al., 2014; Wolfe et al., 2014) because sexting “is not generally accepted social behavior by the larger public” (Reyns et al., 2014 : p.275), and because of the severity of the risks and consequences that are associated with sexting (e.g., the risks of unauthorized distribution or the emotional and psychological consequences associated with the behavior) (Ricketts et al., 2014). Moreover, several studies found that most adolescents do not engage in the behavior (Rice et al., 2012; Temple et al., 2014; Van Ouytsel et al., 2014a). Therefore, it might be useful to study sexting through the prism of a variety of criminological theories such as social learning theories (Lee et al., 2013; Reyns et al., 2014; Ricketts et al., 2014; Wolfe et al., 2014). Studying sexting through a social learning perspective and thus testing a new framework of thought from which to understand the issue can help practitioners and policy makers to gain insight into the motives and consequences of sexting in a more profound way, which could in turn inspire their prevention and intervention practices (Campbell and Park, 2014).

The fact that sexting is studied as a deviant behavior in the current study does not mean that it does not play a legitimate role within adolescent development. Previous research on

other forms of adolescent risk behavior, such as alcohol use, has found that these risky behaviors can play for some teenagers a constructive role within adolescent development and can help them to fulfill certain developmental tasks, such as using alcohol or cigarettes to establish contact or to bond with people of the opposite sex (Silbereisen and Noack, 1989). In this way engagement could help certain adolescents to experiment with relationships, help them express romantic feeling and their sexual identity (Šmahel and Subrahmanyam, 2014; Walrave et al., 2015), especially for adolescents who do not have the opportunity to be intimate with their partner in offline contexts for instance because of their religion (Lippman and Campbell, 2014) .

The aim of this study is to examine the relationship between adolescents' engagement in sexting and concepts of the social learning theory (Ronald L Akers & Jennings, 2009). A better insight in how the social context shapes adolescents' sexting behavior, will better inform sexual education and prevention initiatives and provide a deeper understanding of how it can be addressed by policy and practice. **Until now, most studies on adolescent sexting did not inquire with whom the respondent engaged in sexting (Van Ouytsel et al., 2014b). Our study goes beyond previous research by taking the context of sexting behavior into account, namely engagement in sexting within or outside of a romantic relationship. This study uses a broad definition of sexting and defines the practice as sending sexually explicit texts or sexually explicit pictures/videos in which the sender is depicted. These messages are sent through the internet or the mobile phone. Moreover, using a webcam in underwear or showing one's private parts during a webcam conversation, was also defined as sexting. The definition of sexting in our study is more restrictive than the one by Ringrose et al. (2012) in that it excludes sexting communication in which the sender was not depicted (i.e., the forwarding of pornography or the unauthorized distribution of someone else's sexting images would fall outside of the scope of our study).**

## 2. The social learning theory and sexting behavior

Akers' social learning theory is a framework of thought, through which deviant behavior can be explained. The theory was founded in the differential association theory of Sutherland (1947) and cognitive learning theories (Akers and Jennings, 2009). The social learning theory states that deviant behavior is learned through interaction with and imitation of role models, such as parents and peers (Akers and Jennings, 2009).

The concepts of the social learning theory were found useful in explaining a variety of deviant behaviors, such as adolescent alcohol- and drug use (Akers et al., 1979; Hwang and Akers, 2006; Lee et al., 2004) or adolescent smoking (Krohn et al., 1985).

According to the social learning theory there is a positive linear relationship between engaging in deviant behavior when individuals: (1) believe that a certain deviant act is favorable or justified (i.e., definitions), (2) associate with others who commit deviant acts or hold favorable opinions towards it (i.e., differential association), (3) anticipate a reward for the behavior that outweighs potential punishments (i.e., differential reinforcement), and (4) are more exposed to deviant behavior (i.e., imitation) (Akers and Jennings, 2009). In the following paragraphs, we will discuss the different components of the social learning theory and how they relate to adolescent sexting.

### 2.1. Definitions

Definitions are opinions that an individual holds towards a type of behavior. They are “influenced by an individual’s justifications, excuses, and attitudes that consider the commission of a particular act as being more right or wrong, good or bad, desirable or undesirable, justified or unjustified, appropriate or inappropriate” (Akers and Jennings, 2009: p.326). Akers distinguishes between three types of attitudes towards a behavior: positive beliefs, negative beliefs and neutralizing beliefs. Positive beliefs encompass the opinion that



committing a deviant act is acceptable and morally just. Negative beliefs define that a behavior is undesirable, unacceptable and wrong. Finally, neutralizing beliefs consist of rationalizations and justifications for a deviant behavior (Akers and Jennings, 2009).

Previous studies have found a positive relationship between the extent to which youth indicated that they had engaged in sexting and their positive attitudes towards the behaviors (Lee et al., 2013; Strassberg et al., 2013; Walrave et al., 2015). Strassberg et al. (2013) found a relationship between young people's engagement in sexting and their positive attitudes towards the behavior (such as 'sexting is always ok'). Likewise, students who held negative attitudes, were less likely to have been involved in sexting (Strassberg et al., 2013). A study by Walrave et al. (2015) suggests that positive attitudes towards sexting were associated with a higher intention to engage in the behavior. Similarly, in a study among South Korean youth, Lee et al. (2013) also found that adolescents' engagement in sexting was influenced by their positive perception of the behavior.

## **2.2. Differential association**

The persons with whom individuals interact and associate themselves, play, according to the theory, an important role in the creation of the social context in which social learning takes place (Akers and Jennings, 2009). Through contact with individuals such as their peers, the individual is exposed to deviant behavior and the norms and values that approve or disapprove of this behavior. These values and behaviors will have an impact on whether they will engage in it (Akers and Jennings, 2009).

Multiple qualitative studies have indicated that adolescents' sexting behavior is influenced by peer pressure and the perceived attitudes of the peer group (Lippman and Campbell, 2014; Ringrose et al., 2013; Walker et al., 2013). These findings were confirmed by numerous quantitative studies. A study by Baumgartner et al. (2011) suggests that

injunctive peer norms (i.e., whether peers would approve of the behavior) were predictive of a range of online sexual risk behaviors, among those sending nude photos and videos. Lee et al. (2013) found that peer pressure was positively associated with adolescents' engagement in a range of sexting behaviors. Furthermore, in a sample of at-risk youth, engagement in sexting was associated with a higher perceived approval for sexual activity from peers, family and the media (Houck et al., 2014). Moreover, Walrave et al. (2015) found that the subjective norms, the perceived attitudes, of adolescents' romantic partners and friends, were associated with the intention to engage in sexting. The impact of peers' attitudes on the intention to engage in sexting was higher than the effect of adolescents' own attitudes toward the behavior.

### **2.3. Differential reinforcement**

The component differential reinforcement encompasses the expected outcomes of a deviant behavior. The perceived current and future rewards and punishments will influence the chance that a person will engage or avoid a behavior. The rewards and punishments can be social or non-social in nature (Akers et al., 1979). Positive and negative social reinforcement include the respective approval (e.g., a higher social status, receiving praise) or disapproval (e.g., loss of respect, getting criticism) of a behavior by friends and family. Non-social rewards encompass the potential advantages (e.g., getting a thrill out of doing the behavior) or disadvantages (e.g., being ashamed) of a certain behavior. Differential reinforcement might also include the legal consequences of this deviant behavior (Akers and Jennings, 2009; Akers et al., 1979). However, as sexting between consenting adolescents would most likely not be prosecuted in Belgium (Lievens, 2013), the country in which the present study was conducted, we decided not to operationalize the potential legal consequences of sexting in our study. Although sexting can have adverse consequences, such as reputational damage when sexting messages or images are leaked (Ringrose et al., 2013; Walker et al., 2013), it might

also hold some perceived benefits for adolescents, which enables them to experience positive reinforcement. Within the context of a romantic relationship, sexting can play an important part in the way in which young people experience this intimate relationship (Lippman and Campbell, 2014). In this context, sexting can be used to strengthen the intimate bond with one's romantic partner (Albury and Crawford, 2012; Walker et al., 2013) or as a way to be sexually active without the risks of pregnancy or sexual diseases (Lippman and Campbell, 2014). Exploratory research amongst adults suggests that sexting could serve as a means to restore satisfaction and affection within a romantic relationship (Parker et al., 2012).

Engagement in sexting can also offer perceived rewards outside of a romantic relationship. Several studies emphasize that engagement in sexting is connected to peer group status, for both boys and girls (Lippman and Campbell, 2014; Ringrose et al., 2013). Vanden Abeele et al. (2014) found that boys who reported high self-perceived levels of other-sex popularity had a greater chance of having sent a sexting message. Qualitative research shows that some girls felt that they had to engage in sexting in order to receive the hoped-for attention from boys (Lippman and Campbell, 2014). Ringrose et al. (2013) found that some boys competed with each other to collect as many sexting messages from girls as possible in order to gain peer group status. Moreover, Walrave et al. (2014) found that the following three beliefs were associated with a higher intention to engage in sexting: (1) the belief that engagement in sexting would generate attention for its sender, (2) the belief that engagement in sexting would increase opportunities to find a romantic partner and (3) that engagement in sexting would lower the likelihood of getting a sexually transmitted disease.

#### **2.4. Imitation**

The last dimension of the social learning theory is called imitation, which occurs when individuals model their behavior on another person's behavior (Akers et al., 1979). Imitation

can occur in a direct way through role models that can be found in people close to the individual such as their peers. Imitation can also take place in an indirect way through the media (Akers and Jennings, 2009).

With regard to direct ways of imitation, a study from Rice et al. (2012) suggested that high school students who had sent a sexting message, were more likely to know someone else who had sent a sexting message than students who had not previously engaged in sexting. Furthermore, Baumgartner et al. (2011) found that descriptive peer norms (i.e., an individual's perception of peers' engagement in online sexual risk behavior) were predictive of adolescents' engagement in a range of risky sexual online behaviors. In their qualitative study, Walker et al. (2013) cited the example of some girls who felt the expectation to engage in sexting after they had viewed sexually explicit messages of other people they knew.

Several scholars have emphasized that sexting could also be influenced by the current media and social media culture in which depictions of sex and sexuality are increasingly prevalent and in which sexuality is openly discussed (Chalfen, 2009, 2010; Curnutt, 2012; Theodore, 2010). Social media provide a platform to celebrities, just like they do to the general public, to post sexy pictures of themselves and to objectify their bodies. Observing others in this way could influence adolescents' likelihood to engage in sexting behavior. Previous research among teenagers in 5 different countries also found that pornography consumption was significantly linked with sending and receiving sexting images and messages among adolescents between 14 and 17 years old (Stanley et al., 2016).

## **2.5. The current study**

Until now, a majority of studies on adolescent sexting are rather descriptive in nature and do not adopt a theoretical approach that could help us understand more profoundly the underlying causes and motives of adolescents' engagement in sexting (Ricketts et al., 2014;

Van Ouytsel et al., 2014b). Our study aims to further explore the determinants of adolescents' engagement in sexting by examining to which **extent** the concepts of Akers' social learning theory can explain this behavior.

**Previous research shows that engagement in sexting in which the messages are created by the sender, mainly occurs within two contexts.** The first context occurs within an established romantic relationship as a means to be intimate with the romantic partner. The second context is outside of a romantic relationship to communicate sexual interest or express romantic interest (Lippman and Campbell, 2014; Perkins et al., 2013; Strohmaier et al., 2014). When college students were, for example, asked why they had engaged in sexting, the two most cited reasons were that they had done so as romantic partners (44% of the respondents) or to impress or attract someone in whom they were romantically interested (34% of the respondents) (Strohmaier et al., 2014).

Remarkably, to the best of our knowledge, no previous study on adolescent sexting has distinguished between these very different contexts in which sexting takes place. Most studies ask whether the respondent engaged in sexting without taking into account the recipient of the sexting communication. However, one could hypothesize that the correlates and determinants of engagement in sexting might depend upon the intended recipient of the sexting message, as this might have an impact on the risks and rewards that are involved with it. The perceived risk that sexting messages or images are distributed by a trusted romantic partner in a stable relationship might be quite different from the perceived risks involved with sexually explicit online self-disclosure with someone else such as an acquaintance or someone just met on the internet. It might therefore be important for researchers to take into account with whom the respondent engaged in sexting (Van Ouytsel et al., 2014b). In sum, the goal of our study is to extend previous studies by examining adolescent sexting from a social learning perspective in two **separate** contexts: inside and outside a romantic relationship.

### 3. Methods

#### 3.1. Participants and procedures

In September and October 2013 the researchers contacted 9 secondary schools in the province of Antwerp in Flanders, Belgium to ask them if they wanted to participate in a study about sexting. Four secondary schools accepted this invitation. Other schools refused to participate citing as reasons that they were already participating in other scientific studies or that their schedule did not permit them to dedicate school time to our study. The paper-and-pencil questionnaire was administered in 4 secondary schools amongst a sample of 357 students (59.7% girls,  $n = 213$ ) aged between 15 and 21 years ( $M = 16.92$ ;  $SD = 1.01$ ) in November 2013 as part of a larger study about sexting and its social influences. In each school all students from the last two years of secondary school participated in the study. One secondary school offers a 'seventh year' of vocational education and these students also participated in the survey. The Flemish educational system enables secondary school students to enroll for an additional school year in which students can master a trade and a profession. This additional year provides students from educational school tracks to receive a degree with which they are allowed to enroll in the Flemish University and College system. They are required to follow the same schedule and to adhere to the same rules than other high school students. The inclusion of these students of this additional year explains why some students in our sample are up to 21 years old. All school tracks of the Flemish school system (aso, kso, tso, and bso) were covered by our study. The survey was conducted during school time under the supervision of one of the researchers. In order to enhance the students' privacy, the survey was anonymous and students were explicitly instructed to not write their names or other information that could be used to identify them on the survey. Students were guaranteed that all their information would be confidential and that parents, teachers or other members of the school staff would not have access to the respondents' individual responses. In order to

enhance a feeling of privacy, students were asked to sit apart from each other. Formal consent of the schools' principal and supervising teachers was sought prior to the study. At the beginning of the survey a researcher explained that students were under no obligation to participate and could withdraw at any time without adverse consequences. None of the students refused to participate. Pupils and supervising teachers could ask questions about the survey individually. After every respondent had completed the survey, the participants received information about where they could find more information on sexting and e-safety. They also received instructions that they could talk to the school counselor or call the helpline of a non-profit organization that offer advice about safer internet use, if they had any remaining questions about the topics of the survey. None of the four schools had previously engaged in prevention or awareness raising efforts about sexting.

## **3.2. Measures**

### **3.2.1. Sexting behavior**

Students were asked whether they had engaged in sexting behavior (a) within and (b) outside of a romantic relationship. To measure both dependent variables, participants were asked to indicate whether they had engaged in five sexting behaviors in the six months prior to the study, the five behaviors are: (1) 'sent a text message (e.g., an instant message, e-mail or text message) about sex to someone else through the internet or the mobile phone' (2) 'sent a picture/video to someone else in which you were depicted in underwear, swimwear or bikini through the internet or the mobile phone', (3) 'sent a picture/video to someone in which your private parts were depicted (nude breasts or vagina for girls/penis or testicles for boys) through the internet or the mobile phone', (4) 'had a webcam conversation in which you were clothed in underwear or bikini through the internet or the mobile phone', (5) 'had a webcam conversation in which your private parts (nude breasts or vagina for girls/penis or testicles for

boys) were visible through the internet or the mobile phone'. Students were asked to indicate for each item whether they had engaged in this type of sexting with a romantic partner or someone else than a romantic partner. Items were scored on a 5-point Likert-type scale ranging from 1 = *never* to 5 = *yes, daily*. Because on average, participants did not engage in sexting, the items were recoded into two dichotomous variables. The scores on the items were summated which resulted in a first variable that contains whether one engaged in sexting with a romantic partner in the six months prior to the study ( $n_{yes} = 119$ ). The second variable contains whether one has engaged in one or more of out of five forms of sexting outside of a romantic relationship in the six months prior to the study ( $n_{yes} = 117$ ). 13.2% ( $n = 47$ ) of the respondents engaged in sexting with a romantic partner as well as sexting with someone else than a romantic partner. We decided to exclude these respondents from the further analyses in order to avoid that they were included in both analyses. Including the same respondents in both analyses would make it difficult to interpret how much of the findings were due to sample overlap. Therefore the final sample that was used in the analyses consisted of 310 respondents (62.6% female;  $n = 194$ ), with a mean age of 16.92 years ( $SD = 1.00$ ). 23.2% ( $n = 72$ ) of respondents had engaged in sexting with a romantic partner and 22.6% ( $n = 70$ ) had engaged in sexting with someone else than a romantic partner. All values reported below concern this final sample.

### **3.2.2. Demographics**

Students were asked to indicate their gender, age, school track and amount of internet use outside of school. The amount of internet use outside of school was assessed using a single item question with response options ranging from 1 = *once a month or less* to 8 = *every day, more than 3 hours* ( $M = 6.27$ ,  $SD = 1.35$ ). The response options measuring school track included the three major school tracks of the Flemish education system: 1 = *bsc* (profession



oriented school track) (27.1%,  $n = 84$ ), 2 = *tso/kso* (technical/creative school track) (30.3%,  $n = 94$ ), and 3 = *aso* (academic school track) (42.6%,  $n = 132$ ). Because previous research has demonstrated that Flemish students who follow a less academic school track were more likely to engage in sexting behavior (Vanden Abeele et al., 2014) and that age, gender and use of communication technology by teenagers were associated with engagement in sexting (Campbell and Park, 2014; Klettke et al., 2014), these variables are included in the analyses as control variables.

### 3.2.3. Definitions

Two 9-item scales were used to measure the social learning construct of definitions (i.e., adolescents' favorable attitudes towards sexting behavior). Each scale measured positive beliefs as well as neutralizing beliefs towards the respective type of sexting behavior. The first scale referred to respondents' definitions towards sexting with a romantic partner (*Cronbach's*  $\alpha = .93$ ). Sample items of this scale were: 'It is okay to engage in sexting with your partner, when you do it with someone that you love' and 'Sexting with your partner is a normal part of a romantic relationship'. The second scale referred to their definitions towards sexting with someone else than a romantic partner (*Cronbach's*  $\alpha = .90$ ). Sample items of this scale were: 'It is okay to engage in sexting with someone else, when you do it with someone that you like' and 'Sexting is a normal part of friendship'. The items of both scales were similarly worded but were slightly adapted to match the specific context. Respondents were asked whether they agreed with the statements, using a 6-point Likert scale ranging from 1 = *totally disagree* to 6 = *totally agree*. Principal factor analysis (PFA) reveals that the factor scores for the first scale ranged between .61 and .88 ( $R^2 = 58.96$ ). The factor scores for the second scale ranged from .55 to .82 ( $R^2 = 51.73$ ). The descriptives are presented in Table 1.

[PLEASE INSERT TABLE 1 ABOUT HERE]

#### **3.2.4. Differential association: perceived social norms**

The first construct of differential association refers to important others' perceived approval of sexting either with a romantic partner or with someone else than a romantic partner. Respondents were asked two questions: a) how 'the following people would generally judge youth who engage in sexting with their partner' and b) 'how the following people would generally judge youth who engage in sexting with someone else than a romantic partner'. The items evaluated the perceived opinions of 'father', 'mother', 'most of your good friends' and 'most of your peers who are important in your life'. Response options for both questions ranged from 1 = *strongly disapproves* to 4 = *strongly approves*. For both contexts, the perceived opinions of the respondent's mother and father were combined. *Cronbach's  $\alpha$*  was .83 for sexting within a romantic relationship (factor scores were .84;  $R^2 = 70.80$ ) and .85 for sexting outside of a romantic relationship (factor scores were .86;  $R^2 = 74.60$ ). The perceived judgment of good friends and peers were combined. *Cronbach's  $\alpha$*  was .88 for sexting within a romantic relationship (factor scores were .89;  $R^2 = 79.86$ ) and .92 for sexting outside of a romantic relationship (factor scores were .92;  $R^2 = 84.76$ ). The mean scores of the scales are presented in Table 1.

#### **3.2.5. Differential reinforcement**

Two differential reinforcement scales asked respondents about the perceived rewards for engaging in sexting behavior. Each scale consisted of 4 items measuring the social rewards (i.e., positive romantic or peer relationships as an outcome of sexting) and 3 items measuring perceived non-social rewards (i.e., a good feeling, thrill or excitement). The first

scale measured respondents' perceived rewards of sexting with a romantic partner. Sample items of this scale were: 'Engaging in sexting with your romantic partner, is good for your relationship with that romantic partner' and 'Engaging in sexting with your romantic partner gives a thrill'. The second scale measured respondents' perceived rewards of sexting with someone else than romantic partner. Sample items of this scale were: 'Someone who engages in sexting with someone else is popular with the group' and 'Engaging in sexting with someone else gives a thrill'. Response options ranged from 1 = *totally disagree* to 6 = *totally agree*. PFA indicated that the two dimensions of the scale measuring differential reinforcement for sexting with a romantic partner loaded on one factor (*Cronbach's*  $\alpha = .93$ ; factor loadings ranging from .66 to .88;  $R^2 = 66.81$ ). The same analysis technique indicated that the scale measuring sexting with someone else than a romantic partner did comprise of the two dimensions that were intended (*Cronbach's*  $\alpha$  for social reinforcement = .82; factor loadings ranging from .61 to .89;  $R^2 = 32.75$  and *Cronbach's*  $\alpha$  for non-social reinforcement = .88; factor loadings ranging from .74 to .90;  $R^2 = 64.61$ ). The mean scores for these scales are displayed in table 1.

### **3.2.6. “Differential association : sources of imitation within the peer group” and “sources of imitation via the media”.**

Imitation can occur through observation of the behavior in the social environment of a person and through the media (Akers and Jennings, 2009). These respective sources of imitation were assessed through two separate questions. In the first question, the respondents were asked whether they knew if the following people had ever engaged in sexting on a 4-point scale ranging from 1 = *never* to 4 = *very often*. The two consisted of their friends ( $M = .49$ ,  $SD = .64$ ) or acquaintances ( $M = .36$ ,  $SD = .59$ ) whom they admired. Factor scores for both items were .83 ( $R^2 = 69.40$ ; *Cronbach's*  $\alpha = .82$ ).

Because observation through the media would most likely occur through indirect way (e.g., a celebrity posting sexy pictures online) a separate question asked respondents whether they had ‘ever observed from the following persons that they posted a sexy picture (e.g., a picture of their muscular body, abs, bikini or a sexy pose) of themselves online (e.g., on websites such as Facebook, Instagram or Twitter)’. Respondents could indicate whether they had observed this behavior from musicians they like ( $M = 1.22, SD = .98$ ), actors they like ( $M = 1.32, SD = .92$ ) and other famous persons they like (from television or the internet) ( $M = 1.25, SD = .94$ ). Factor scores for these items were .77, .93 and .86 respectively ( $R^2 = 73.11$ ; *Cronbach’s  $\alpha = .88$* ).

### **3.3. Analytic strategy**

Data were analyzed using SPSS 22.0 (IBM Corp., Armonk, NY). We conducted two separate logistic regression analyses to examine the association between the variables of the social learning theory and (1) having engaged in sexting with a romantic partner in the six months prior to the study, and (2) having engaged in sexting with someone else than a romantic partner in the six months prior to the study. Control variables were gender, age, school track and internet use. The factor scores of the social learning variables were saved and used in the analyses. All predictor variables were entered simultaneously. **Table 2 and table 3 display the correlations between the research constructs used in the models. The analyses are presented in tables 4 and tables 5.**

**[PLEASE INSERT TABLE 2 ABOUT HERE]**

**[PLEASE INSERT TABLE 3 ABOUT HERE]**

## 4. Results

### 4.1. Social learning variables engagement in sexting within a romantic relationship

**Table 4** shows the results of the logistic regression analyses regarding engagement in sexting within a romantic relationship. All social learning variables were entered simultaneously. Only respondents' definitions towards sexting within a romantic relationship ( $b = .72, p \leq .05$ ) and differential association with peers regarding sexting within a romantic relationship ( $b = .56, p \leq .05$ ) were significant social learning predictors of engagement in sexting with a romantic partner. Put differently, having positive attitudes towards sexting with a romantic partner increases one's probability to engage in sexting with a romantic partner. Likewise, adolescents' who perceive their peers' opinions as favorable towards sexting also have a higher chance to engage in sexting themselves. The effect of one's own definitions is stronger than the effect of the perceived opinions of their peers. The perceived opinions of parents, the perceived positive reinforcement and learning of engagement in sexting (like) behavior by peers or through the media do not influence one's chances to having engaged in sexting with a romantic partner. Of the control variables, enrollment in a technically/creatively oriented school track ( $b = .90, p \leq .05$ ) and being male ( $b = -.90, p \leq .05$ ) turned out to be significant predictors of engaging in sexting.

[PLEASE INSERT TABLE 4 ABOUT HERE]

### 4.2. Social learning variables and engagement in sexting outside of a romantic relationship

**Table 5** shows the results for the logistic regression analyses for engagement in sexting outside of a romantic relationship. All social learning variables were entered in the

model together with the control variables. It appears that in our model adolescents' probability to engage in sexting with someone else than a romantic partner is significantly influenced by their definitions regarding sexting outside of a romantic relationship ( $b = .67, p \leq .01$ ) and positive non-social reinforcement ( $b = .58, p \leq .05$ ). This means that adolescents who hold positive attitudes towards sexting outside of a romantic relationship are more likely to engage in sexting with someone else. Engagement in sexting is also predicted by adolescents' perceived non-social reinforcement, such as getting a thrill or excitement out of their engagement in sexting with someone outside of a romantic relationship. The perceived opinions of peers, the perceived opinions of parents, the perceived positive social reinforcement and learning of engagement in sexting (like) behavior by peers or through the media do not influence one's chances to engage in sexting. None of the control variables were significantly associated with engagement in sexting in this model.

[PLEASE INSERT TABLE 5 ABOUT HERE]

## 5. Discussion

Studying adolescent sexting from the perspective of different theoretical frameworks can aid educators, practitioners and policy makers to gain a deeper understanding of the reasons why young people engage in it and how this issue could be addressed in policy, prevention and educational initiatives (Campbell and Park, 2014). From this motivation, the current study examined the extent to which the components of Akers' social learning theory can explain engagement in sexting behavior. The final model for sexting within a romantic relationship explained 26% of the variance. The final model for sexting outside of a romantic relationship explained 32% of the variance. The higher explained variance of the latter model might be attributed to the fact that the social learning theory which was developed to analyze deviant behavior might be best suited to explain sexting outside of a romantic relationship, the

relatively more risky behavior of the two sexting behaviors that were the subject of our study. The present study is also one of the first to make a distinction between sexting with a romantic partner and engagement in sexting with someone else than a romantic partner.

The extent to which adolescents reported that they had observed celebrities posting sexy pictures of themselves was not significantly related to adolescents' engagement in sexting within or outside of a romantic relationship. We did not find evidence that observing similar behavior from others, such as celebrities, through online media might contribute to engagement in similar behavior by adolescents, when taking into account other social learning theory variables.

Likewise, perceived parental attitudes towards sexting were also not significantly associated with adolescents' engagement in the behavior neither in the model that examined sexting with a romantic partner nor in the model that examined sexting with someone else than a romantic partner. This is in contrast with previous research that found that condom use among teenagers was positively affected by conversations between parents and their children about their sexuality and safe sexual behavior (Aspy et al., 2007; DiClemente et al., 2001). Future research might further investigate the role that parents can play in successfully communicating with their children about their online sexual behavior. As our results suggest that perceived parental attitudes did not have a significant influence on adolescents' engagement in sexting, prevention efforts could focus on more effective methods of informing adolescents about the risks and opportunities of engagement in sexting.

For both models investigating sexting within and outside of a romantic relationship, respondents' definitions of sexting (i.e., neutralizing and positive beliefs towards the behavior) proved to be the most important predictors of engagement in sexting net of the control variables. **This means that the more adolescents justify engagement in sexting and hold positive attitudes towards sexting, the more likely they will be to engage in sexting**

themselves. Future research and prevention initiatives could examine how adolescents' perceived risks of sexting and their definitions toward sexting, both within and outside of a romantic relationship, could be addressed by awareness raising efforts. As Walrave et al. (2014) suggested, these awareness raising efforts could influence definitions by counterbalancing the perceived benefits of sexting by educating adolescents about the short-term risks of engaging in sexting behavior, such as the risk of unauthorized dissemination and the risk of subsequent reputational damage (Walrave et al., 2014). Döring (2014) suggested that educational efforts should educate young people about problematic forms of sexting and they should teach adolescents to engage in the behavior when the communication is anonymized, and reciprocal.

The extent to which adolescents perceived that their peers approved of sexting was significantly associated with their own engagement in the behavior within a romantic relationship. This is in line with previous research that found that sexting and online sexual risks behavior were associated with perceived peer approval (Baumgartner et al., 2011; Houck et al., 2014). Sexting is comparable to other adolescent risk behavior in which young people report that their friends approved of it, such as smoking or alcohol use (Olds and Thombs, 2001). Future research could focus on the development of prevention and intervention campaigns that try to address the influence of peer social norms. Furthermore, prevention efforts, could stress that statistics indicate that only a minority of young people actually engage in the behavior within the context of a romantic relationship (Lippman and Campbell, 2014; Walrave et al., 2014). Another strategy could consist of using trained students to raise awareness amongst their peers about the risks of engagement in the behavior (Van Ouytsel et al., 2014c). The use of "peer education" has proven to be successful in traditional sexual health education and was able to affect sexual risk taking behavior among adolescents



(Merakou and Kourea-Kremastinou, 2006; Smith and DiClemente, 2000; Sriranganathan et al., 2012).

Positive reinforcement was not significantly associated with engagement in sexting within a romantic relationship, net of the control variables. Exploratory factor analysis indicated that social and non-social reinforcement loaded on separate factors for engagement in sexting with someone else than a romantic partner. This might indicate that sexting with someone else, perhaps because of the more significant risks involved. It is remarkable that sexting with someone other than a romantic partner remains significantly associated with positive non-social reinforcement, when all other variables are taken into account. This means that young people have a higher chance of being involved in this type of sexting, when they assess the emotional consequences of sexting as positive (such as a thrill, excitement or a good feeling). Further research could therefore focus on the extent to which personality traits among adolescents could explain sexting behavior outside of a romantic relationship. Previous studies found a significant association between impulsivity and a general measure of adolescent sexting (Temple et al., 2014) and between sensation seeking and sexting (Van Ouytsel et al., 2014a). Sensation seeking and impulsivity are important factors in a variety of sexual risk behavior among adolescents, such as having multiple sexual partners or taking alcohol or drugs before having sexual intercourse (Charnigo et al., 2013). Future research could focus on how prevention and intervention campaigns can address the perceived rewards of sexting with someone else than a romantic partner. Again, practitioners could stress that the long-term risks that are particularly associated with engagement in sexting outside of a romantic relationship, outweigh the immediate rewards.

In the model investigating sexting within a romantic relationship, boys were more likely to have engaged in sexting. There were no gender differences in the model for sexting outside of a romantic relationship. The previous literature on sexting has mixed findings on

the associations between gender and engagement in sexting. Some studies among adolescents have found that associations between being female and having engaged in sexting (Houck et al., 2014; Mitchell et al., 2012; Ybarra and Mitchell, 2014), some studies found links between being male and having engaged in sexting (Rice et al., 2014; Vanden Abeele et al., 2014), and others did not find a gender difference at all (Dake et al., 2012; Lee et al., 2013; Strassberg et al., 2013; Temple et al., 2012; Van Ouytsel et al., 2014a). Our result might be explained by the fact, according to qualitative studies, boys sometimes send a sexting message first, hoping that the girl will start to engage in sexting with the boy (Döring, 2012; Lippman and Campbell, 2014).

The results of our study underscore the need for future research to ask whether respondents engaged in sexting within or outside of a romantic relationship. Future studies could investigate if the previously found correlations between a general measures of sexting and different types of risk behaviors (e.g., sexual risk behavior and substance abuse) and health outcomes (e.g., feeling sad or hopeless and suicidal thoughts) would hold if one would take into account whether they engaged in sexting within or outside of a romantic relationship (Van Ouytsel et al., 2014b).

## **5.1.Limitations**

Despite the innovative character of our study and its implications for research and practice, our study is subject to some limitations. First, the present study relied on self-report measures of sexting behavior. It is unknown to which extent these measures reflect actual behavior. Although students were assured that their answers were anonymous and would remain confidential, it might be possible that some respondents provided socially desirable answers. Second, due to time considerations, our study could only include a limited number of

control variables. Our findings would have benefited from the inclusion of a wider variety of control variables such as young people's ethnicity, trust in the recipients of their messages, relationship length and significance of the relationship, current and prior sexual behavior, quality of peer relationships and their engagement in other types of health risk behavior.

Third, our study used a broad measure of sexual self-disclosure which encompasses a range of behaviors that also ranged in levels of sexual explicitness and the risks associated with it.

Future research would benefit from focusing on one specific behavior such as the sending of self-made sexually explicit pictures. **Moreover, our study limited the definition of visual**

**sexting to communication in which the sender was depicted. This limits the scope of the behavior as for instance sexually explicit images sent by a person that is not pictured would**

**fall outside of the scope of our study.** Fourth, the present study used separate scales to

distinguish two important contexts of sexting behavior: sexting with a romantic partner and sexting with someone else. 'Someone else' was broadly defined 'as everyone but a romantic

partner' and could include friends, people one met through the internet or someone the

respondent would like to seduce. **This could also explain the relative high prevalence rate of**

**sexting outside of a romantic relationship.** Most likely, adolescents' attitudes about the

desirability and acceptability of sexting with 'someone else' might vary depending on who

this person is (e.g., a good friend versus an online contact). Future research could use a more

in-depth measure of the differences between these types of recipients. **Fifth, our study**

**conceptualized the aspect of differential association by asking the respondents about the**

**perceived social norms surrounding sexting (i.e., differential association – perceived social**

**norms) and whether they perceived that their peers and acquaintances whom they admired**

**were involved in the behavior (i.e., differential association – sources of imitation). The social**

**learning theory states that “associations that occur early (priority); last longer or occupy a**

**disproportionate amount of one's time (duration); happen the most frequently; and involve the**

intimate, closest, or most important partners/peer groups (intensity) will likely exert the greatest effect on an individual's decision to participate in either conforming or nonconforming behavior" (Akers and Jennings, 2009). It would have, therefore, strengthened our study if we would have included these measures of priority, duration, frequency and intensity in our items. Sixth, the results of our study rely on cross-sectional data, as such this makes it difficult to establish causality. Last, our study used a convenience-sample of adolescents of a same geographical region within Flanders, Belgium. This might limit the generalizability of our results. Alternative participant recruitment and data collection strategies might be needed to minimize sampling bias in future studies.

## **6. Conclusion**

Notwithstanding these limitations, our study provides a deeper understanding in why adolescents choose to engage in sexting and it is one of the first to distinguish between sexting within and outside of a romantic relationship. The research findings indicate that adolescents' attitudes are linked with their engagement in sexting. Sexting outside of a romantic relationship appears to be uniquely influenced by the excitement and the sensation that is associated with the risks of this behavior. The results of our study suggest that researchers should include more detailed questions about the intended recipient of the sexting messages in their studies, in order to control for the contexts in which adolescent sexting takes place. Practitioners, such as teachers, school counselors and school nurses, should be aware of the contextual differences between various types of sexting, as these might affect adolescents' motivations to engage in the behavior and the information that could be provided by prevention and intervention campaigns.

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Table 1

*Means and standard deviations of the social learning scales*

	<i>M</i>	<i>SD</i>	<i>min - max</i>
<b>Definitions</b>			
towards sexting with a romantic partner	3.38	1.15	1 - 6
towards sexting with someone else	2.19	.89	1 - 6
<b>Differential association</b>			
towards sexting with a romantic partner (parental opinion)	1.50	.59	1 - 4
towards sexting with a romantic partner (peers opinion)	2.47	.71	1 - 4
towards sexting with someone else (parental opinion)	1.17	.38	1 - 4
towards sexting with someone else (peers opinion)	1.77	.70	1 - 4
<b>Differential reinforcement</b>			
towards sexting with a romantic partner - positive social and non- social	3.15	1.14	1 - 6
towards sexting with someone else - positive social	2.28	.95	1 - 6
towards sexting with someone else - non social	2.66	1.26	1 - 6
<b>Differential association / sources of imitation</b>			
peers	.43	.57	0 - 3
media	1.26	.85	0 - 3

Table 2. Correlations Between the Research Constructs for Sexting Outside of a Romantic Relationship

	1	2	3	4	5	6	7
1 Definitions towards sexting	-						
2 Differential Association perceived social norms of peers regarding sexting	.46***	-					
3 Differential Association perceived social norms of parents regarding sexting	.28***	.36***	-				
4 Social reinforcement of sexting outside a romantic relationship	.31***	.20***	.11	-			
5 Non-social reinforcement of sexting outside a romantic relationship	.54***	.31***	.21**	.06	-		
6 Differential association / sources of imitation - peers	.35***	.23***	.13*	.12*	.32***	-	
7 Differential association / sources of imitation - pictures media	.07	.08	-.05	.07	.21***	.24***	-
8 Sexting behavior	.41***	.24***	.07	.12*	.35***	.26***	.10

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p \leq .001$ .

Table 3. Correlations Between the Research Constructs for Sexting Within a Romantic Relationship

	1	2	3	4	5	6
1 Definitions towards sexting	-					
2 Differential Association perceived social norms of peers regarding sexting	.65***	-				
3 Differential Association perceived social norms of parents regarding sexting	.37***	.39***	-			
4 Reinforcement of sexting with a romantic partner	.81***	.62***	.36***	-		
5 Differential association / sources of imitation - peers	.44***	.39***	.22***	.47***	-	
6 Differential association / sources of imitation - pictures media	.15**	.12*	-.03	.23***	.24***	-
7 Sexting behavior	.28***	.20***	.15*	.19***	.14*	.10

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p \leq .001$ .

Table 4

*The Effects of Social Learning Theory constructs on engagement in sexting behavior with a romantic partner*

	Sexting within a romantic relationship B (SE) {OR} [95% CI]
Constant	-6.34 (3.31) {.00}
Gender ( <i>ref</i> = female)	-.90 (.40) {.41} [.18-.89]*
Age	.32 (.19) {1.38} [.95-2.01]
School track bso ( <i>ref</i> = aso)	.62 (.46) {1.86} [.75-4.63]
School track tso ( <i>ref</i> = aso)	.90 (.42) {2.47} [1.09-5.60]*
Internet use	-.12 (.12) {.89} [.70-1.13]
Definitions towards sexting	.72 (.31) {2.06} [1.12-.3.80]*
Differential Association perceived social norms of peers regarding sexting	.56 (.26) {1.75} [1.05-.2.90]*
Differential Association perceived social norms of parents regarding sexting	.17 (.19) {1.19} [.81-.1.75]
Reinforcement of sexting with a romantic partner	-.20 (.31) {.82} [.44-1.51]
Differential association / sources of imitation - peers	-.12 (.21) {.89} [.59-1.34]
Differential association / sources of imitation pictures media	.15 (.19) {1.16} [.80-1.69]
Model $\chi^2$	48.20***
Nagelkerke $R^2$	.26

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$

Table 5

*The Effects of Social Learning Theory constructs on engagement in sexting behavior with someone else than a romantic partner*

	Sexting outside of a romantic relationship B (SE) {OR} [95% CI]
Constant	-.60 (3.82) {.55}
Gender ( <i>ref</i> = female)	-.11 (.40) {.89} [.41-1.96]
Age	-.12 (.21) {.88} [.58-1.35]
School track bso ( <i>ref</i> = aso)	-.95 (.53) {.39} [.14-1.11]
School track tso ( <i>ref</i> = aso)	.11 (.43) {1.11} [.48-2.61]
Internet use	.19 (.16) {1.21} [.89-1.64]
Definitions towards sexting	.67 (.25) {1.96} [1.20-3.20]**
Differential Association perceived social norms of peers regarding sexting	.40 (.22) {1.49} [.97-2.28]
Differential Association perceived social norms of parents regarding sexting	-.14 (.19) {.87} [.60-1.26]
Social reinforcement of sexting outside a romantic relationship	-.00 (.23) {1.00} [.64-1.56]
Non-social reinforcement of sexting outside a romantic relationship	.58 (.27) {1.79} [1.06-3.03]*
Differential association / sources of imitation - peers	-.12 (.22) {1.13} [.74-1.73]
Differential association / sources of imitation pictures media	-.02 (.22) {.98} [.63-1.50]
Model $\chi^2$	58.04***
Nagelkerke $R^2$	.32

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$