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# **Understanding adolescents' unfriending on Facebook by applying an extended theory of planned behaviour**

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# **Understanding adolescents' unfriending on Facebook by applying an extended theory of planned behaviour**

## **Abstract**

Becoming friends on Facebook does not always guarantee long-term friendships as users have the possibility to unfriend people. This unfriending behaviour is frequently occurring and might have negative consequences for both parties. To gain insight into the factors influencing adolescents' unfriending, the current study made use of an extended version of the theory of planned behaviour. To enrich the theoretical framework, we included antecedents related to adolescents' friendship management on Facebook, namely their number of friends, their friendship acceptance threshold, and their degree of public communication. A cross-sectional survey was conducted among 1.117 adolescents. SEM analyses indicated that both subjective norm and attitude were related to behavioural intention, which in turn was related to adolescents' unfriending behaviour. Perceived behavioural control was only associated with adolescents' unfriending behaviour. Regarding the additional factors, the size of adolescents' friend networks was positively related to their confidence in the ability to unfriend people. Adolescents' friendship acceptance threshold was negatively related to their attitude, whereas adolescents' degree of public communication was positively associated with their perceived behavioural control and the experienced social pressure to unfriend.

Keywords: social network sites – Facebook – adolescents – unfriending - theory of planned behaviour

## 1. Introduction

Social network sites (SNSs) are a powerful tool for adolescents to manage their friendships. Among adolescents, Facebook seems to be the most popular SNS (Apestaartjaren, 2016; Lenhart et al., 2015). This is not surprising as Facebook functions mainly as a friendship network and adolescents attach great importance to their friends (Brown & Larson, 2009; Mesch & Talmud, 2006; Mikami et al., 2010). Facebook builds on this through suggestions for new friendships or reporting memories from a year ago with the 'on this day' feature. This keeps users busy with their friendships, and it encourages reciprocal exchanges between friends. As a result, research increasingly investigates (the formation of) friendships on Facebook (e.g., Bohn et al., 2014; Heirman et al., 2016).

However, becoming friends on Facebook does not guarantee long-term friendships as users have the possibility to unfriend people, or to remove people from a list of friends (Madden et al., 2013; Peña & Brody, 2014). Previous research indicates that 3 out of 4 adolescents have already unfriended people (Madden et al., 2013; Verswijvel, Heirman, Hardies, & Walrave, 2018). Various reasons may lead to this unfrinding behaviour (e.g., inappropriate and polarizing posts, and sending too many game requests) (Gashi & Knautz, 2016; Sibona & Walczak, 2011; Verswijvel et al., 2018). Although unfrinding might have positive effects, such as avoiding harassment and insults (Justice, 2016), unfrinding may also be disadvantageous as adolescents can derive many benefits from their Facebook connections, including self-validation and obtaining help (Berndt, 2002; Ellison, Steinfield, & Lampe, 2007; Johnston, Tanner, Lalla, & Kawalski, 2013; Steinfield, Ellison, & Lampe, 2008). Furthermore, unfrinding might have negative emotional and cognitive consequences (e.g., feeling depressed, worried or frustrated) for the unfriended parties (Bevan, Ang, & Fearn, 2014; Bevan, Pfyl, & Barclay, 2012). Because unfrinding is a frequently occurring behaviour with possible negative consequences for both parties, a better understanding of adolescents' unfrinding is desirable. The few existing studies on unfrinding have largely focussed on adults (18 years and older). This raises questions as adolescents attach greater importance to their friends than other age groups (Brown & Larson,

2009; Mesch & Talmud, 2006; Mikami et al., 2010). Furthermore, prior studies have mainly investigated factors related to the unfriended parties themselves as they examined adults' online reasons (i.e., those reasons arising from friends' behaviour on SNSs) and offline reasons (i.e., those reasons emerging from friends' offline behaviour) for their unfriending behaviour (Gashi & Knautz, 2016; Sibona & Walczak, 2011), the influence of perceived face threat and social/physical attractiveness (Peña & Brody, 2014), and the effect of embeddedness, gender composition, and similarity (Quercia, Bodaghi, & Crowcroft, 2012). Hence, a clear understanding of the factors that affect unfriending related to those that make the unfriending decision (rather than the unfriended parties) is currently lacking from the literature.

In order to gain a better understanding of adolescents' unfriending, the present study used an extended version of the theory of planned behaviour (TPB; Ajzen, 1991). Central to the TPB is the idea that an individual's behaviour is influenced by the intention to perform a given behaviour, with stronger intentions generally increasing the likelihood that a given behaviour will be performed (Ajzen, 1991). In turn, intentions are related to attitudes, subjective norms, and behavioural control. The theory has already proved its utility for understanding various online behaviours, such as accepting friend requests from strangers (e.g., Heirman et al., 2016), sexting (e.g., Walrave, Heirman, & Hallam, 2014), and the disclosure of personal information or pictures (e.g., Heirman, Walrave, & Ponnet, 2013; Kim et al., 2016). Given that adolescents are susceptible to the norms that their social referents hold (Prinstein & Dodge, 2008), the TPB was a solid starting point as it distinguishes among attitudes, subjective norms, and perceived behavioural control as predictors of adolescents' intention to unfriend a Facebook friend and their unfriending behaviour. To enrich our theoretical framework, we included factors that serve as antecedents of attitudes, subjective norms, and perceived behavioural control. These antecedents are related to adolescents' friendship management on Facebook and include their number of friends, their friendship acceptance threshold, and their degree of public communication.

By applying an extended TPB framework and thus measuring both intention and behaviour, we took into account some shortcomings of the study that Peña and Brody (2014) conducted. In their research, they included only adults' intention to unfriend. The unfriending behaviour itself was not seen as an outcome variable. Moreover, they did not include subjective norm in the model. The practical value of the current study is that the (extended) TPB allowed us to identify which factors are the most important. This is essential for practitioners as TPB-based interventions seem to be effective for behavioural change (Steinmetz et al., 2016).

## **2. Theory of planned behaviour**

Central to the TPB is the idea that behaviour is influenced by the intention to perform a given behaviour (Ajzen, 1991) - in this study, unfriending people on Facebook. Intention is a function of three determinants, namely attitude, subjective norm, and perceived behavioural control (Aarts & Van Woerkum, 2008; Fishbein & Ajzen, 2010). Attitude refers to people's belief about the behaviour's consequences (Ajzen, 1991; Fishbein & Ajzen, 2010), whereas subjective norm stems from the beliefs about the normative expectations of important others (Ajzen, 1991). Perceived behavioural control refers to people's belief that they are able to pursue the behaviour (i.e., self-efficacy) (Aarts & Van Woerkum, 2008; Ajzen, 2012). The indirect effect of perceived behavioural control through intention is based on the assumption that it has motivational implications for behavioural intentions (Armitage & Conner, 2001; Madden, Ellen, & Ajzen, 1992). In general, the more favourable the attitudes and the subjective norms, and the more people believe that they have the capacity to perform a behaviour, the stronger their intention to exhibit the behaviour (Ajzen, 2017). In addition to its indirect effect, there is also a direct effect of perceived behavioural control on behaviour (Aarts & Van Woerkum, 2008; Madden et al., 1992). If people's perceived behavioural control is accurate, it can serve as an indication of actual control and therefore, it can be used to predict behaviour (Ajzen, 2017; Madden et al., 1992). In the following paragraphs, each determinant is described in more detail.

## **2.1 Attitude**

The first determinant is the attitude toward the behaviour, which stems from beliefs about the behaviour's consequences (Ajzen, 1991; Fishbein & Ajzen, 2010). These beliefs produce an overall positive or negative attitude toward the behaviour (Aarts & Van Woerkum, 2008). Thus, an attitude can be seen as an evaluation of a given behaviour. When the evaluation is favourable, people will have stronger intentions to conduct the behaviour. Prior research indicates that the more adolescents believe that online privacy is important, the more likely they are to adopt privacy-protective behaviours (e.g., Moscardelli & Divine, 2007; Walrave, Vanwesenbeeck, & Heirman, 2012; Youn, 2009). Given that unfriending on Facebook is also part of privacy management (e.g., when some people are not allowed to see certain information) (Madden et al., 2013), it is plausible that attitude plays a part in breaking up a friendship on Facebook. In addition, Heirman and colleagues (2016) indicate that attitude plays a role in friendship formation on Facebook. They find that adolescents with positive attitudes toward friending strangers are more inclined to accept friend requests made by people with whom they have no offline connection. This brings us to the following hypothesis:

**H1.** When adolescents have more positive attitudes toward unfriending people on Facebook, they will have stronger intentions to unfriend people on Facebook.

## **2.2 Subjective norm**

The second determinant is subjective norm, which stems from the beliefs about the normative expectations of important others (Ajzen, 1991). When people believe that social referents want them to perform given behaviours, their intentions are positively influenced (Aarts & Van Woerkum, 2008; Fishbein & Ajzen, 2010). Given that adolescents are concerned about the impressions they make on peers (Steinberg, 1996), and considering that interactions on Facebook take place in (semi-) public settings susceptible to social norms (Boyd & Ellison, 2007; Bryant & Marmo, 2012; Hooper & Kalidas, 2012), subjective norms from social referents are essential

in understanding Facebook users' behaviour. Bryant and Marco (2012, p. 37) examined what kind of friendship rules may occur on Facebook, and they found that 'deleting or blocking anyone who posts something that compromises your image' is one of them. Regarding online friendship formation, Heirman and colleagues (2016) indicate that subjective norm is associated with adolescents' intention to accept requests from strangers. When adolescents encounter more negative reactions from social referents, they are less motivated to accept invitations. When they encounter positive reactions, the reverse happens. Hence, it is reasonable to assume that this is also the case with unfriending.

**H2.** When adolescents experience more perceived social pressure to unfriend others on Facebook, they will have stronger intentions to unfriend people on Facebook.

### **2.3 Perceived behavioural control**

The third determinant is perceived behavioural control, which stems from people's belief that they can pursue the behaviour (i.e., self-efficacy) (Aarts & Van Woerkum, 2008; Ajzen, 2012). According to Bandura (1995), individuals are more motivated to engage in a particular behaviour when they believe that the behaviour is achievable. Thus, the confidence people have in their ability to perform a behaviour strongly influences the behaviour (Bandura et al., 1980; Madden, Ellen, & Ajzen, 1992). Previous research shows that more advanced usage of the Internet and SNSs depends on someone's Internet self-efficacy judgments or perceived behavioural control (e.g., Boyd & Hargittai, 2010; Eastin & LaRose, 2006). In line with these findings, Heirman and colleagues (2016) find a positive association between perceived behavioural control and adolescents' intention to accept friendship requests from strangers. Based upon these insights, we expect the following:

**H3a.** When adolescents perceive greater behavioural control toward unfriending people on Facebook, they will have stronger intentions to unfriend people on Facebook.



In addition, the TPB (Ajzen, 1991) states that perceived behavioural control also has a direct effect on behaviour (Aarts & Van Woerkum, 2008; Madden et al., 1992). If someone's perception of behavioural control is accurate (i.e., the correct determination of actual control), it can predict a given behaviour (Ajzen, 2012, 2017; Madden et al., 1992). For this reason, we expect the following:

**H3b.** When adolescents perceive greater behavioural control toward unfriending people on Facebook, they will more often unfriend people on Facebook.

## **2.4 Intention**

Intention is the immediate antecedent of behaviour and refers to 'how much of an effort an individual is planning to exert in order to perform the behaviour' (Ajzen, 1991, p. 181). The idea is that stronger intentions increase the likelihood that a given behaviour will be performed. In the context of friendship formation, previous research indicates that adolescents' intention to accept friend requests on Facebook is strongly related to their acceptance behaviour (Heirman et al., 2016). As adolescents' unfriending on Facebook is a conscious act because it requires clicking the 'Unfriend' button, we expect that:

**H4.** When adolescents have stronger intentions to unfriend people on Facebook, they will more often unfriend people on Facebook.

## **2.5 Antecedents of TPB factors (an extended theoretical framework)**

To enrich our theoretical framework, we include factors that serve as antecedents of attitudes, subjective norms, and perceived behavioural control. The antecedents are related to adolescents' friendship management on Facebook and include their number of friends, their friendship acceptance threshold, and their degree of public communication. These antecedents are included because of Facebook's function as a friendship network where adolescents can maintain and

expand their social circles and where reciprocal exchanges between friends are encouraged. Previous work already indicates that the number of friends and the friendship acceptance threshold are important factors for friending someone on Facebook (Goering, 2003; Mesch & Talmud, 2006; Quercia et al., 2012; Rashtian, Boshmaf, Jaferian, & Beznosov, 2014; Steinberg & Morris, 2001; Tong, Van Der Heide, Langwell, & Walther, 2008; Utz, 2010), and that adolescents with a larger number of friends are more likely to delete people from their networks (Madden et al., 2013). With regard to the reciprocal exchanges, previous research among adults and adolescents indicates that the communication behaviour of the unfriended parties is a common reason for unfriending (Gashi & Knautz, 2016; Sibona & Walczak, 2011; Verswijvel et al., 2018). Therefore, we also take a closer look at the influence of the communication behaviour related to the person who makes the unfriending decision.

By adding these antecedents, we deal with the criticism that the TPB provides an insufficient explanation for behaviour due to a focus on proximal factors (e.g., Armitage & Conner, 2001; Conner, 2015). A meta-analysis of TPB studies indicates that the average amount of explained variance in behaviour is 19.3% (McEachan et al., 2011). By adding distal factors or antecedents to the model, we aim to acquire a better understanding of adolescents' unfriending on Facebook.

### **2.5.1 Number of friends**

On a Facebook profile, the number of friends seems to be an important indicator of someone's popularity (e.g., Tong et al., 2008; Utz, 2010). However, Tong and colleagues (2008) indicate that the 'popularity increase' happens only up to a certain point. They find a curvilinear effect suggesting that an overabundance of friend connections raises doubts about someone's popularity. In addition, Dunbar (1998) and Gladwell (2000) argue that a person can maintain only 150 stable offline friendships. By increasing this number of friends, the added value of a friendship decreases. On Facebook, adolescents often exceed this maximum number of stable friendships. For instance, Madden and colleagues (2013) find that the typical adolescent Facebook user has 300 friends. They also indicate that adolescents with a larger number of

friends are more likely to delete people from their networks. Through these insights, we expect that when adolescents have more friends on Facebook, they share more positive attitudes toward unfriending. Additionally, when they have more friends on Facebook, ending a friendship can happen unnoticed (Sibona, 2013). Users do not quickly notice the loss of a friend unless they keep track of the number of friends. Therefore, we also expect that these adolescents have more confidence in their ability to unfriend people. Based upon these insights, we formulate the following hypotheses:

**H5a.** When adolescents have more friends on Facebook, they will be more positive about unfriending people on Facebook.

**H5b.** When adolescents have more friends on Facebook, they will have more confidence in their ability to unfriend people on Facebook.

### **2.5.2 Friendship acceptance threshold**

Before becoming friends with someone on Facebook, the mutual consent of both individuals is required (Sibona, 2013; Sibona & Walczak, 2011). During this process of friendship formation, several requirements are applied before getting friends. Individuals often attach importance to social similarity: ‘Contact and friendship formation between similar individuals occurs at a higher rate than among dissimilar individuals’ (Mesch & Talmud, 2006, p. 139). Therefore, friendships are often formed between those who have the same interests or social circles, and those who participate in the same activities (Goering, 2003; Mesch & Talmud, 2006; Quercia et al., 2012; Rashtian et al., 2014; Steinberg & Morris, 2001). Hence, it is reasonable to assume that when adolescents apply higher friendship acceptance thresholds, they are less positive about unfriending on Facebook because they are more selective about their friendships.

**H6.** When adolescents apply higher friendship acceptance thresholds, they will be less positive toward unfriending people on Facebook.

### **2.5.3 Public communication**

On Facebook, several private and public communication options are provided for adolescents to communicate with their friends (Green et al., 2016). However, some research indicates that both adolescents and adults are more likely to post messages, photos or videos on walls than to send private messages to each other (Bryant & Marmo, 2012; Lenhart & Madden, 2007; Pempek, Yermolayeva, & Calvert, 2009). One reason might be that this public communication may help to solidify a friendship (Bryant & Marmo, 2012). ‘It is a nice feeling to get comments’ (Lenhart & Madden, 2007, p.13). Previous research indicates that most adolescents consciously deal with their privacy-settings to determine who sees the content they post (Madden et al., 2013). Given that wall posts on Facebook mostly take place in (semi-) public settings (Boyd & Ellison, 2007) and that unfriending is part of privacy management (Madden et al., 2013), adolescents and their social referents may view unfriending as advantageous when they do not want particular people to see their posts (Bryant & Marmo, 2012). Therefore, we expect the following:

**H7a.** When adolescents engage more in public communication on Facebook, they will be more positive toward unfriending people on Facebook.

**H7b.** When adolescents engage more in public communication on Facebook, they will more likely be exposed to social pressure to unfriend people on Facebook.

Additionally, research indicates that Internet skills depend on someone’s experience online (e.g., Livingstone & Helsper, 2010; Schumacher & Morahan-Martin, 2001). For this reason, we assume that when adolescents use Facebook more often to communicate in public with others

and thus spend more time online, this may strengthen their confidence in their ability to perform a particular behaviour, such as unfriending. This brings us to the following hypothesis:

**H7c.** When adolescents engage more in public communication on Facebook, they will have more confidence in their ability to unfriend people on Facebook.

Table 1 summarizes the related research findings and hypotheses. The hypothesized relationships are shown in Figure 1 as well.

*[insert Table 1 about here]*

*[insert Figure 1 about here]*

### **3. Method**

#### **3.1 Participants and data collection**

This study used cross-sectional data from a larger ‘Best Friends Forever on SNS’ project. In April and May 2016, a paper-and-pencil survey was conducted to gain insight into the various factors that affect adolescents’ unfriending on Facebook. We explored adolescents’ unfriending on Facebook as this is the most popular SNS among adolescents (Apestaartjaren, 2016; Lenhart et al., 2015).

The participants included 1.316 adolescents, including 624 (47.4%) girls and 633 (48.1%) boys (59 adolescents did not indicate their sex), from 14 Flemish schools with an average age of 15.26 years ( $SD = 1.49$  years). The schools were randomly chosen from the different Flemish provinces. Of the 1.316 adolescents, 1.117 (84.9%) had Facebook profiles. A minority did not have Facebook accounts ( $n = 137$  or 10.4%), had deactivated their profiles ( $n = 33$  or 2.5%), or did not indicate whether they had their own profiles ( $n = 29$  or 2.2%), and they were excluded

from the sample. The final sample included 1.117 adolescents (531 or 47.5% girls and 537 or 48.1% boys) with an average age of 15.40 ( $SD = 1.45$ ).

Before participation in the study, we sought approval from the school board, after which parental permission was obtained. Data collection took place at the schools during one class hour. The adolescents had the right to refuse to participate in the study or to withdraw at any time. The study protocol was approved by the Ethics Committee for the Social Sciences and Humanities of the University of Antwerp.

### 3.2 Measures

Before the adolescents filled in the survey, a brief description of the behaviour in terms of its target (i.e., adolescents who have a Facebook profile), action (i.e., how many times they already unfriended someone on Facebook), context (i.e., Facebook), and time elements (i.e., during the time they are active on Facebook) was given (Ajzen, 2017).

*Attitude.* This concept refers to the degree to which an adolescent has a positive (i.e., favourable) or negative (i.e., unfavourable) evaluation of the unfriending behaviour on Facebook. Adolescents' evaluation of the unfriending behaviour was measured by means of five items on a fully labelled six-point Likert scale ranging from 'totally agree' (1) to 'totally disagree' (6). After removing one item, the internal reliability proved to be good ( $\alpha = .78$ ). For an overview of the scale items, we refer to Table 2.

*Subjective norm.* This concept is defined as the perceived social pressure from social referents to perform the unfriending behaviour on Facebook. For measuring the subjective norm, three items were used. Six fully labelled answering options ranging from 'totally disagree' (1) to 'totally agree' (6) were provided. After one item was removed, the internal reliability proved to be good ( $\alpha = .78$ ). A Pearson correlation analysis was conducted to calculate the correlation between the two items (Eisinga, Grotenhuis, & Pelzer, 2013). Cohen's (1988) cut-off values were used to interpret the correlation's strength. The results indicated a strong correlation between the two items ( $r = .72, p = .00$ ).

*Perceived behavioural control.* This concept refers to the degree to which an adolescent thinks he or she can pursue the unfriending behaviour on Facebook. Perceived behavioural control was measured with two items on a fully labelled six-point Likert scale ranging from 'totally disagree' (1) to 'totally agree' (6). A moderate correlation ( $r = .38, p = .00$ ) was found between the items.

*Intention.* This concept refers to an adolescent's intention to unfriend someone on Facebook. To operationalize the behavioural intention, two items were measured on a fully labelled six-point Likert scale ranging from 'totally disagree' (1) to 'totally agree' (6). The correlation analysis indicated a strong correlation between the two items ( $r = .63, p = .00$ ).

*Number of friends.* Adolescents were asked in a single item to indicate on a fully labelled 10-point Likert scale ranging from 'less than 25' (1) to 'more than a thousand' (10), how many friends they had on their Facebook profiles.

*Friendship acceptance threshold.* This concept refers to the degree to which an adolescent holds particular requirements before friending others on Facebook. Based on a literature review (i.e., Goering, 2003; Mesch & Talmud, 2006; Quercia et al., 2012; Rashtian et al., 2014; Steinberg & Morris, 2001), some items were developed and pre-tested among a group of 10 adolescents who could add additional requirements. Eventually, this resulted in six items. Five fully labelled answering options ranging from 'totally disagree' (1) to 'totally agree' (5) were provided. After removing one item, reliability analysis revealed that the scale was reliable ( $\alpha = .66$ ).

*Public communication.* Adolescents' degree of public communication on Facebook was measured with a single item. They were asked to indicate on a fully labelled 10-point Likert scale ranging from 'less than once a month' (1) to 'more than ten times a day' (10), the extent to which they posted content on their own Facebook profile or others' profiles.

*Unfriending behaviour.* The outcome variable of unfriending behaviour was measured with a single item. Adolescents were asked to indicate, on a fully labelled five-point Likert scale ranging from 'never' (1) to 'more than 10 times' (5), the extent to which they already unfriended people on Facebook.

### 3.3 Data analyses

To investigate the hypothesized relations, structural equation modelling (SEM) was applied using the Mplus 6 software package (Muthén & Muthén, 2010). Maximum likelihood was used as an estimator. First, a measurement model was conducted by means of a confirmatory factor analysis (CFA) to verify whether the observed variables measured the latent variables. Cut-off values of .40 were used as a threshold for significant factor loadings (Stevens, 2012). Then, a structural model was tested based upon our hypotheses (Figure 1). Sex was entered as a control variable as previous descriptive research indicated that girls displayed a greater tendency to unfriend people (Madden, 2012; Madden et al., 2013). To control for sex, this variable was regressed on all variables within the extended TPB model. To assess the overall quality of our measurement and structural model, several goodness-of-fit tests were applied (i.e., relying on fit indices with various measurement properties; Jackson, Arthur, & Purc-Stephenson, 2009). We used the most widely accepted (Brown & Moore, 2012) and commonly reported measures of fit (Jackson et al., 2009), namely the comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR). The following cut-off values were used as indicators of a good model fit: CFI and TLI values between .90 and .95 or greater; RMSEA values between .08 and .06 or below; and SRMR values between .10 and .08 or below (Hu & Bentler, 1999).

Additionally, a multiple group analysis was conducted to explore sex differences in the coefficients. For girls and boys separately, the same model was computed. However, the paths within the models were allowed to vary based on sex. In a next step, the fit of the fully constrained model (i.e., all parameters equal for girls and boys) was compared with the fit of the unconstrained model. To determine the best fitting model, differences in the Chi-square test and the Akaike information criterion (AIC) were explored. For all analyses, the significance level was set at .05.



## 4. Results

### 4.1 Measurement model

First, we assessed the measurement model with attitude, subjective norm, perceived behavioural control, intention, and friendship acceptance threshold as latent variables. The model was assessed by means of a CFA. The results from the goodness-of-fit tests pointed to a good fit (CFI = .96, TLI = .94, RMSEA = .04, SRMR = .04). All factor loadings were significant and above the cut-off value of .40. Table 2 provides an overview of the scales and items. The correlations between the factors of our extended model are depicted in Table 3.

*[insert Table 2 about here]*

*[insert Table 3 about here]*

### 4.2 Structural model

Subsequently, we tested our structural model. Goodness-of-fit tests (CFI = .93, TLI = .91, RMSEA = .04, SRMR = .05) indicated a good fit for the proposed model (Figure 2). The model explained 17.1% of the total variance in adolescents' intentions to unfriend others on Facebook, and 41.4% of the variance in their behaviour. Perceived social pressure from social referents had a somewhat stronger relation with adolescents' intention ( $\beta = .25, p = .00$ ) (H2) than attitude ( $\beta = .23, p = .00$ ) (H1). Perceived behavioural control was, contrary to our expectations, not associated with intention ( $\beta = .02, p = .73$ ) (H3a). However, our analysis confirmed the positive relation between perceived behavioural control and adolescents' unfriending behaviour ( $\beta = .38, p = .00$ ) (H3b). A positive relation was found between intention and behaviour ( $\beta = .44, p = .00$ ) (H4).

With regard to the additional factors, the number of friends adolescents had on Facebook was positively related to perceived behavioural control ( $\beta = .14, p = .00$ ) (H5b). No significant relation was found between adolescents' number of friends and their attitude toward unfriending

( $\beta = .05, p = .13$ ), and therefore H5a could not be confirmed. Concerning adolescents' friendship acceptance thresholds, a negative association was found with attitude ( $\beta = -.13, p = .00$ ) (H6). The degree to which adolescents communicated in public on Facebook was positively related to the subjective norm ( $\beta = .11, p = .00$ ) (H7b) and perceived behavioural control ( $\beta = .18, p = .00$ ) (H7c). Contrary to our expectations, no significant relationship was found between the degree of public communication and attitude ( $\beta = .05, p = .16$ ) (H7a).

Sex was significantly related to the degree to which someone communicated in public with friends ( $\beta = .16, p = .00$ ), indicating that girls were more likely to post messages in public than boys. Furthermore, sex was significantly related to subjective norm ( $\beta = .08, p = .03$ ), meaning that girls experienced higher levels of social pressure to unfriend people on Facebook.

*[insert Figure 2 about here]*

### **4.3 Multiple group structural model**

A multiple group analysis was conducted to explore sex differences in the coefficients. Therefore, we compared the fit of the fully constrained model, where all parameters were equal for girls and boys, with the fit of the unconstrained model, where all parameters were freely estimated for the different groups. Results indicated that the model with free parameters did not significantly improve the model fit when compared with the constrained model ( $\Delta X^2(11) = 9.49, p = .58$ ;  $AIC_{\text{unconstrained model}} = 54382.00, AIC_{\text{constrained model}} = 54369.49$ ), indicating that there were no differences in the parameters among boys and girls.

## **5. Conclusion and discussion**

Given that Facebook connections may offer several advantages for adolescents (Berndt, 2002; Ellison et al., 2007; Johnston et al., 2013; Steinfield et al., 2008) and that unfriending causes negative emotions among the unfriended parties (Bevan et al., 2014, 2012), a better

understanding of adolescents' unfriending is needed. Especially because adolescents attach great importance to their friends (Brown & Larson, 2009; Mesch & Talmud, 2006; Mikami et al., 2010). Therefore, this study aimed to get a clear understanding of the influencing factors related to the person who takes the unfriending decision. For this purpose, we made use of an extended version of the TPB (Ajzen, 1991). A paper-and-pencil survey was conducted among 1.117 adolescents with an average age of 15.40 years ( $SD = 1.45$ ). The results yielded from SEM analysis showed that the extended model fitted the data well. The model accounted for 17.1% of the total variance in adolescents' intentions toward unfriending on Facebook, and 41.4% of the variance in their behaviour.

When controlling for sex, both attitude (H1) and subjective norm (H2) were related to the intention to unfriend people on Facebook, which in turn was related to adolescents' unfriending behaviour (H4). Normative expectations from social referents, however, seemed to have a somewhat stronger relation with adolescents' intention. This result indicates that the more social pressure adolescents experienced to unfriend others on Facebook, the more they were willing to unfriend. This finding sounds plausible as adolescents are strongly concerned about the impressions they make on peers and the extent to which they feel appreciated by others (Steinberg, 1996). Previous research also indicated that subjective norm is the strongest TPB factor among adolescents when they conduct several other online behaviours, such as accepting friend requests from strangers (e.g., Heirman et al., 2016), sexting (e.g., Walrave, Heirman, & Hallam, 2014), and the disclosure of personal information or pictures (e.g., Heirman, Walrave, & Ponnet, 2013; Kim et al., 2016). Concerning the control variable, girls experienced higher levels of social pressure to unfriend people on Facebook, which will eventually lead to more unfriending on Facebook. This finding is in line with previous descriptive research indicating that girls displayed a greater tendency to unfriend people (Madden, 2012; Madden et al., 2013). Perceived behavioural control had a significant relation only with adolescents' unfriending behaviour (H3b). A possible explanation for the absence of the relation between perceived behavioural control and intention (H3a) might be that when adolescents have complete control over the

unfriending behaviour, the influence of perceived behavioural control on intention becomes redundant (Ajzen, 1991). Adolescents' complete control over the behaviour does not increase their intention to unfriend someone. Given that the 'Unfriend' button is at the top of the Facebook page, requiring just a single click (Gashi & Knautz, 2016), it is possible that adolescents have considerable control over the unfriending behaviour. Following these results, practitioners could develop awareness campaigns to make adolescents, and especially girls, more aware of their vulnerability to subjective norms. As Facebook connections may offer several advantages for adolescents (Berndt, 2002; Ellison et al., 2007; Johnston et al., 2013; Steinfield et al., 2008), it is important that adolescents themselves support the unfriending decisions. Creating more awareness about social norms might be done by organizing dialogue sessions whereby both adolescents and their peers are encouraged to exchange thoughts. It gives them the opportunity to discuss their thoughts about possible reasons to unfriend and its consequences, but also to discuss potential concerns they have about unfriending on Facebook. By doing this, adolescents themselves may also better understand why they were unfriended in the past. In the dialogue sessions, it is important as well to let adolescents think about whether they support particular unfriending decisions and the reasons why they support these decisions.

When adolescents themselves support the unfriending decision, it is important that they have confidence in their ability to pursue the unfriending behaviour. Therefore, practitioners must also pay attention to adolescents' perceived behavioural control by giving more information about how to unfriend someone on a responsible way (i.e., that the self-supported unfriending decision is less confronting for the unfriended person). Hereby, adolescents also have to think about the alternatives for unfriending such as the 'Unfollowing' feature (i.e., allows someone to remain friends with particular persons on Facebook without seeing their status updates) and 'Snooze' feature (i.e., allows someone to hide a friend's status updates on Facebook for a duration of 30 days).

Regarding the additional factors, the number of friends that adolescents had on Facebook was positively related to their perceived behavioural control toward unfriending (H5b). Contrary to

our expectations, no significant relationship was found between adolescents' number of friends and their attitude toward unfriending (H5a). These results indicated that an increased number of friends did not elicit more positive attitudes towards unfriending. It might be that there is no linear relationship between the size of adolescents' friend network and their attitudes, and that the relationship only occurs after a certain cut-off value (e.g., 300 friends). Future research could explore this in more depth. On the other hand, when adolescents had larger networks, they had more confidence in their ability to unfriend people (i.e., perceived behavioural control). When adolescents have many friends on Facebook, ending a friendship can happen unnoticed (Sibona, 2013) as users do not quickly notice the loss of a friend unless they keep track of the number of friends. Furthermore, adolescents' friendship acceptance threshold was negatively associated with their attitude (H6). These results indicated that when adolescents applied higher friendship acceptance thresholds, they were less positive toward unfriending people. As they were already selective at the source - deciding whether to accept friendship requests - they may have been less inclined to reconsider this decision. Previous research indicated that more than 1 out of 2 adolescents (51.5%-64.6%) have unknown friends on Facebook (i.e., people they never met offline) (Heirman et al., 2016; O'Dea & Campbell, 2012). By being non-selective when accepting friend requests, the more likely it is that these friending decisions may cause problems leading to unfriending behaviour. Based upon these insights, it is recommended that practitioners emphasize the importance of friendship acceptance thresholds before adolescents become friends with other people on Facebook. Further, adolescents' degree of public communication on Facebook positively influenced their perceived behavioural control (H7c) and the experienced social pressure to unfriend (H7b). In other words, the more adolescents communicated in public (i.e., posting content on their own or other people's Facebook), the more confidence these adolescents had in their unfriending behaviour. Previous research namely indicated that Internet skills depend on someone's experience online (e.g., Livingstone & Helsper, 2010; Schumacher & Morahan-Martin, 2001). In addition, the more adolescents communicated in public, the more social pressure they experienced to unfriend people on Facebook. Given that interactions on

Facebook mostly take place in (semi-) public settings (Boyd & Ellison, 2007) and that unfriending is part of privacy management (Madden et al., 2013), social referents may view unfriending as advantageous when they do not want people to see particular posts. Contrary to our expectations, no significant relationship was found between adolescents' degree of public communication and their attitude toward unfriending (H7a). It might be that Facebook users who often communicate in public were not necessarily more worried about their privacy. These Facebook users possibly want to elicit many reactions or feedback from their friends and therefore prefer large lists of friends. Another explanation might be that they use other mechanisms to protect their privacy. For instance, Madden and colleagues (2013) showed that 58% of adolescents had blocked people on SNSs. Boyd (2014) indicated that adolescents can also make use of social steganography (i.e., hidden messages in public posts). Following the results, it is also important to make adolescents more aware of the consequences of their public communication. This applies especially to girls, as they were more likely to post public messages than boys. Additionally, these results once more indicate that practitioners could develop awareness campaigns to make adolescents more aware of their vulnerability to subjective norms.

## **6. Limitations**

Notwithstanding the study's results, some limitations should be acknowledged. As this study drew upon cross-sectional data from a larger 'Best Friends Forever on SNS' project, the number of items included in the survey for measuring some of the constructs were limited. For instance, perceived behavioural control was measured with two items. In future research, this scale could be fine-tuned more extensively. It is also recommended for future research to make a distinction between various types of social referents (e.g., peers and parents). By doing this, a better understanding of subjective norm can be generated. Further, we measured intention and behaviour at one time as we believe that adolescents' unfriending behaviour remains largely stable over time. After a period of social imbalance during early adolescence, friendship stability appears to increase again during the remaining period of adolescence (Urberg, Degirmencioglu,

& Tolson, 1998). Nevertheless, we acknowledge that any inference of causality must be made with caution. Although measuring intention and behaviour at one time is possible, the relation between these two measures provides insights only into the extent to which an adolescent's intention to unfriend someone on Facebook is consistent with his or her previous unfriending behaviour (Ajzen, 2017; Armitage & Conner, 2001). Only when adolescents' unfriending behaviour is stable over time, can the measure of past behaviour serve as a proxy for future unfriending behaviour on Facebook (Ajzen, 2017). For future research, we recommend to use a longitudinal design, rather than to collect cross-sectional data.

Additionally, socially desirable answers may have been provided and recall bias may have occurred due to the self-reported nature of the data (Cohen, Manion, & Morrison, 2007). Beside unfriending itself, future research could also explore the alternatives for unfriending, such as the 'Unfollowing' and 'Snooze' feature. The latter one was introduced at the end of 2017. Future research could therefore investigate predictors of these alternatives for unfriending.

Finally, our research model explained only 41.4% of the total variance in the unfriending behaviour. Although this is in line with previous research using an extended version of the TPB (e.g., Heirman et al., 2016, 2013; Walrave et al., 2014), future research could investigate whether additional factors may further increase the explained variance. For instance, it would be interesting to include factors that are inherent to a particular friendship on Facebook, such as the friendship initiator, number of mutual friends, and frequency of online or offline contact.

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Table 1

Overview of the related research findings and hypotheses

Extended TPB constructs	Related work and hypotheses
<b>Attitude</b>	<p>The more positive adolescents' attitudes toward online privacy, the more likely privacy-protective behaviours will be conducted (Moscardelli &amp; Divine, 2007; Walrave et al., 2012; Youn, 2009).</p> <p>In the context of friendship formation, adolescents' attitude is associated with the intention to accept friend requests on Facebook (Heirman et al., 2016).</p> <p><b>H1.</b> When adolescents have more positive attitudes toward unfriending people on Facebook, they will have stronger intentions to unfriend people on Facebook.</p>
<b>Subjective norm</b>	<p>Several kinds of friendship rules exist on Facebook among adolescents (Bryant &amp; Marmo, 2012).</p> <p>In the context of friendship formation, subjective norm is associated with adolescents' intention to accept friend requests on Facebook (Heirman et al., 2016).</p> <p><b>H2.</b> When adolescents experience more perceived social pressure to unfriend others on Facebook, they will have stronger intentions to unfriend people on Facebook.</p>
<b>Perceived behavioural control</b>	<p>The usage of SNSs depends on someone's self-efficacy judgments (Boyd &amp; Hargittai, 2010; Eastin &amp; LaRose, 2006).</p> <p>In the context of friendship formation, adolescents' perceived behavioural control is associated with the intention to accept friend requests on Facebook (Heirman et al., 2016).</p> <p><b>H3a.</b> When adolescents perceive greater behavioural control toward unfriending people on Facebook, they will have stronger intentions to unfriend people on Facebook.</p> <p><b>H3b.</b> When adolescents perceive greater behavioural control toward unfriending people on Facebook, they will more often unfriend people on Facebook.</p>
<b>Intention</b>	<p>Stronger intentions generally increase the likelihood that behaviour will be performed (Ajzen, 1991).</p> <p>In the context of friendship formation, adolescents' intention to accept friend requests is associated with the acceptance behaviour on Facebook (Heirman et al., 2016).</p> <p><b>H4.</b> When adolescents have stronger intentions to unfriend people on Facebook, they will more often unfriend people on Facebook.</p>

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<b>Number of friends</b>	<p>The numbers of friends on Facebook is an important indicator of popularity (Tong et al., 2008; Utz, 2010), however the ‘popularity increase’ happens only up to a certain point (Tong et al., 2008).</p> <p>Adolescents with larger friend networks on Facebook are more likely to unfriend people (Madden et al., 2013).</p> <p>When individuals have more friends on Facebook, the more unfriding can happen unnoticed (Sibona, 2013).</p> <p><b>H5a.</b> When adolescents have more friends on Facebook, they will be more positive about unfriding people on Facebook.</p> <p><b>H5b.</b> When adolescents have more friends on Facebook, they will have more confidence in their ability to unfriend people on Facebook.</p>
<b>Friendship acceptance threshold</b>	<p>Before becoming friends on Facebook, mutual consent of both individuals is required (Sibona, 2013; Sibona &amp; Walczak, 2011).</p> <p>Several requirements are applied before getting friends, such as social similarity (Goering, 2003; Mesch &amp; Talmud, 2006; Quercia et al., 2012; Rashtian et al., 2014; Steinberg &amp; Morris, 2001).</p> <p><b>H6.</b> When adolescents apply higher friendship acceptance thresholds, they will be less positive toward unfriding people on Facebook.</p>
<b>Public communication</b>	<p>On Facebook, several private and public communication options are provided (Green et al., 2016).</p> <p>Adolescents consciously deal with privacy-settings to determine who sees the content they post (Madden et al., 2013).</p> <p>Internet skills depend on someone’s experience online (Livingstone &amp; Helsper, 2010; Schumacher &amp; Morahan-Martin, 2001).</p> <p><b>H7a.</b> When adolescents engage more in public communication on Facebook, they will be more positive toward unfriding people on Facebook.</p> <p><b>H7b.</b> When adolescents engage more in public communication on Facebook, they will more likely be exposed to social pressure to unfriend people on Facebook.</p> <p><b>H7c.</b> When adolescents engage more in public communication on Facebook, they will have more confidence in their ability to unfriend people on Facebook.</p>

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Table 2  
Overview scales and items with standardized factor loadings

Construct	$\beta$	Sig.	M	SD
<b>Attitude (<math>\alpha = .78</math>)</b>				
<b>What do you think of unfriending?</b>				
Unfriending someone on Facebook is bad	.75*	.00	5.93	1.06
Unfriending someone on Facebook is stupid	.83*	.00	5.95	1.02
Unfriending someone on Facebook is harmful	.54*	.00	5.73	1.20
Unfriending someone on Facebook is unfriendly	.63*	.00	4.94	1.38
<b>Subjective norm (<math>r = .72, p = .00</math>)</b>				
People who are important in my life would approve that I unfriend someone on Facebook	.86*	.00	4.05	1.39
Generally, people who are important in my life accept the fact that I unfriend others on Facebook	.84*	.00	4.29	1.29
<b>Perceived behavioural control (<math>r = .38, p = .00</math>)</b>				
I know how to unfriend someone on Facebook	.54*	.00	5.41	1.25
It is easy for me to unfriend someone on Facebook	.71*	.00	5.27	0.98
<b>Intention (<math>r = .63, p = .00</math>)</b>				
Soon, I am likely to unfriend people on Facebook	1.05*	.00	2.58	1.30
I currently have plans to unfriend some people on Facebook	.61*	.00	2.34	1.35
<b>Friendship acceptance threshold (<math>\alpha = .66</math>)</b>				
If I see that someone has a lot of friends, I have a substantial reason to accept the friendship request on Facebook	.54*	.00	1.61	.85
If I see that someone has enough mutual friends, I have a substantial reason to accept the friendship request on Facebook	.56*	.00	2.75	1.17
Living in the same city is a substantial reason to accept a friendship request on Facebook	.58*	.00	1.91	1.01
Being in the same school is a substantial reason to accept a friendship request on Facebook	.52*	.00	3.84	1.02
Having the same hobbies or interests is a substantial reason to accept a friendship request on Facebook	.46*	.00	2.20	1.14
<b>Number of friends</b>				
How many friends do you have on Facebook?	/	/	5.84	2.01
<b>Public communication</b>				
How often are you on Facebook to post something on your profile page or someone else's profile?	/	/	4.17	2.86
<b>Unfriending</b>				
How many times did you already unfriend someone on Facebook?	/	/	2.86	1.39

\* $p$ -value < .05

Table 3

Pearson correlation matrix

Construct		1	2	3	4	5	6	7	8
<b>1. Attitude</b>	R	1							
	Sig.								
<b>2. Subjective norm</b>	R	.33*	1						
	Sig.	.00							
<b>3. Perceived behavioural control</b>	R	.24*	.27*	1					
	Sig.	.00	.00						
<b>4. Intention</b>	R	.24*	.27*	.12*	1				
	Sig.	.00	.00	.00					
<b>5. Friendship acceptance threshold</b>	R	-.12*	-.06	-.06	.01	1			
	Sig.	.00	.10	.11	.78				
<b>6. Number of friends</b>	R	.05	.07*	.09*	.12*	.10*	1		
	Sig.	.09	.02	.01	.00	.00			
<b>7. Public communication</b>	R	.05	.11*	.12*	.09*	.05	.15*	1	
	Sig.	.14	.00	.00	.01	.13	.00		
<b>8. Unfriending</b>	R	.37*	.29*	.28*	.47*	.02	.18*	.16*	1
	Sig.	.00	.00	.00	.00	.65	.00	.00	

\**p*-value < .05

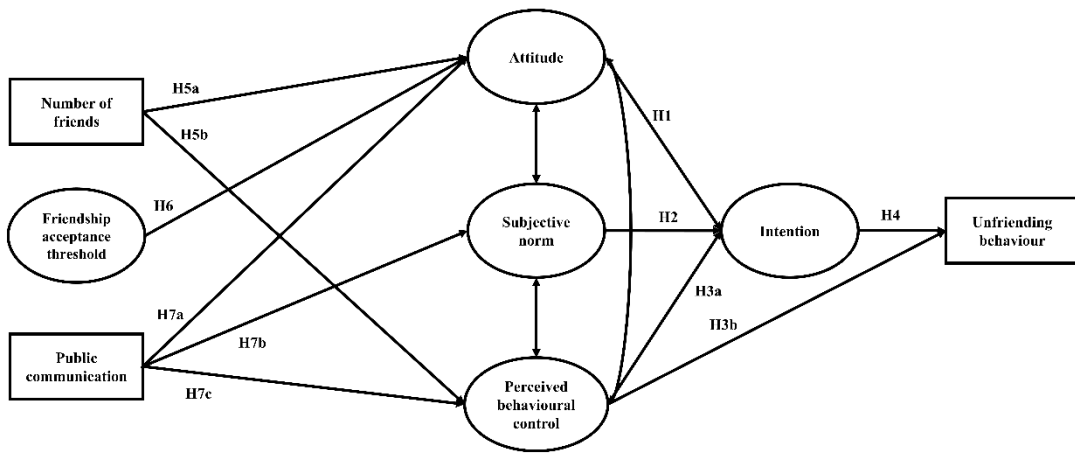


Figure 1. Conceptual model of an extended version of the theory of planned behaviour applied to unfriending on Facebook.

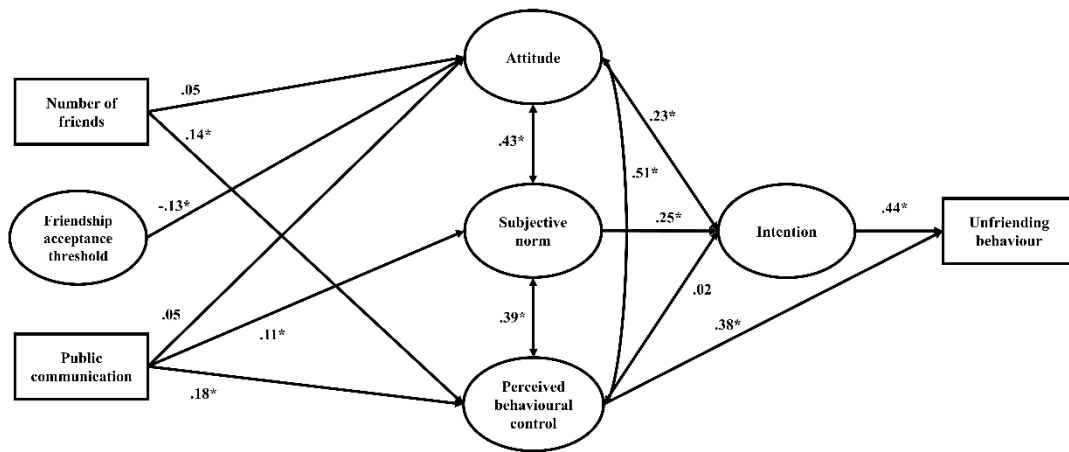


Figure 2. Structural model of an extended version of the theory of planned behaviour applied to unfriending on Facebook. Note: All reported coefficients are standardized values. In order to increase the clarity of the model, sex is not included in the visual presentation. \**p-value* < .05.