# It's Not About the Risks, I'm just Used to Doing It: Disclosure of Personal Information on Facebook Among Adolescent Dutch Users

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**Abstract.** A paper-based survey was conducted with 560 students of a high school in the eastern part of the Netherlands to determine the factors influencing their personal information disclosure behavior on Facebook. Results of the path analysis reveal that habits and perceived control strongly predict information disclosure of research respondents. Furthermore, information-related benefits also contribute to disclosure among adolescent Dutch Facebook users. Moreover, perceived control positively influences respondents' trust (in Facebook and in their network members).

**Keywords:** Personal information disclosure · Habit · Perceived control · Trust

## 1 Introduction

Reports from the Office for National Statistics (ONS) in the UK and from the Eurostat indicated that the Netherlands, alongside the United Kingdom and Sweden, topped the list of countries with the highest proportion of social network users in Europe [46]. It has also reported that 65 % of the Dutch population are using either Facebook or Twitter, or even both. The Dutch Centraal Bureau voor de Statistiek [7] reported that in 2012, over 80 % of people between the ages of 12 and 18 were active users of either Facebook or Twitter or both. Since adolescents are significantly present in online social networking (OSN) sites, the quantity of personal information they share on those sites can also be enormous, as they, according to Christofides, Muise, and Desmarais [10], tend to share more information than adult OSN site users.

Active participation in OSN sites, through identity creation and management and social conversation engagement, according to a number of researchers [9, 31], requires users to constantly share various types of information such as photos, updates of their activities, and their thoughts on issues and things. In Beldad, De Jong, and Steehouder's [3] framework for personal information-related behaviors on the Internet, it is proposed that people's willingness to share personal information is predicated on several factors such as trust, benefits, habits, and context relevance.

Previous studies into information disclosure on Facebook have indicated that the benefits that can be derived from information sharing (e.g. self-presentation,

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maintenance of social ties) [23] can increase disclosure, while perceived risks can result in people's disinclination to share information [12]. What remains unknown, however, is the exact nature of the relationship between factors such as habits and perceived control and the disclosure of various types of personal information on OSN sites. Furthermore, while researchers [9, 23] have investigated the determinants of information disclosure among young adults, there is still less attention to the mechanisms behind information sharing among adolescent users of an OSN site. These are the two gaps that the study aimed at addressing.

## 2 Determinants of Information Disclosure on Facebook

#### 2.1 Benefits

People's decision to join online social networking (OSN) sites, such as Facebook and Flickr, is often predicated on several considerations such as communication and relationship maintenance [17, 23, 25, 34], relationship building [23], and personal information publication [25, 42]. Additionally, OSN sites also enable users to actively participate in civil and political activities [41]. In this study, the benefits of disclosing personal information on OSN sites are categorized into two, namely, information-related (e.g. transmission of information about one's daily activities and thoughts on things) and impression management-related (e.g. posting information to shape other people's view of the person posting).

Previous studies have shown that these benefits lower OSN site users' resistance to the idea of sharing complete and correct personal information [6, 23], since information withholding and fabrication reduce users' ability to engage in online self-presentation and communication with multiple individuals [10]. This prompts the first set of research hypotheses.

H1: The perceived (a) information-related and (b) impression management-related benefits of disclosing personal information on Facebook positively influence personal information disclosure among adolescent Dutch users.

## 2.2 Trust

Personal information disclosed online is susceptible to abuse. In the context of OSN site use, disclosed personal information could be exploited not only by the OSN site but also by members of the network of the one disclosing and third parties such as commercial organizations [1, 22]. These risks necessitate the cultivation of trust, as trust is relevant only when actions could be pursued without any certainty [24]. Mayer, Davis, and Schoorman [27] define trust as 'the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party' (p. 712).

The impact of trust in the party receiving personal information has been reported to significantly influence information disclosure in various online transactions, such as e-government [5] and e-commerce [14, 28]. It is also likely that the level of trust OSN site users have in Facebook and in their network members, two primary recipients of

shared information, could also influence users' personal information sharing behavior. This supposition results in the second hypothesis.

H2: The levels of trust adolescent Dutch Facebook users have in (a) Facebook and in their (b) social network members positively influence their personal information disclosure behavior.

The negative relationship between trust and risk perception is well-established in the literature. Previous studies have shown that people's level of trust lowers their sensitivity to risk considerations [18] and reduces their perceptions of the risks of engaging in an exchange with the trusted party [2, 4, 20]. This leads to the third research hypothesis.

H3: Adolescent Dutch Facebook users' levels of trust in Facebook and in their social network members negatively influence their perception of the risks of disclosing personal information to (a) Facebook and to their (b) social network members, respectively.

#### 2.3 Perceived Control

Central to the definition of privacy is the concept of control [29, 39] – that is, control over who should have access to one's personal information though the creation of a 'privacy zone' [40]. The notion of control in relation to Facebook use is realized through the platform's effort to extend the needed technical possibility for users to define who would have access to their disclosed information, in the form of privacy settings. As people believe that they own their personal information [33], they are less likely to hesitate sharing their information if they know that they can decide how much information to make accessible to whom. The next research hypothesis is predicated on this assertion.

H4: Perception of control among adolescent Dutch Facebook users positively influences their personal information disclosure behavior.

Managing one's information privacy in OSN use context is possible when OSN sites provide their users with the possibility to define who should have access to their information through technical means such as privacy settings [45]. This perception of control has been noted to influence OSN users' perceptions of control [38], just as this perception, through available privacy management tools, could trigger users' trust in their network members [23]. On the contrary, when users do not feel that they have control over their personal information, they will most likely assume that disclosing personal information is a risky enterprise [11]. Based on these results, hypotheses 5 and 6 are advanced.

- H5: Perception of control among adolescent Dutch Facebook users positively influences their trust in (a) Facebook and in their (b) social network members.
- H6: Perception of control among adolescent Dutch Facebook users negatively influences their perception of the risks of disclosing personal information to (a) Facebook and to their (b) social network members.

### 2.4 Habit

Thus far, the first three described predictors of information disclosure on Facebook are primarily tied to the rational mechanism behind the decision to share information. What remains unclear and unknown, however, is the extent to which a non-rational predictor, such as habit, contributes to information disclosure. The shortage in studies that consider

habit as a determinant of any OSN use-related behavior prompted Cheung and Lee [8] to suggest the inclusion of habit in models intending to capture the performance of an OSN site-related behavior.

The assumption that information disclosure is not always anchored on a rational ground is based on the finding that despite people's preference to keep their information private they still opt to share those information not only for the benefits derived from sharing but also for the 'taste' of disclosure [36]. Additionally, Strater and Richter [37] reported that people tend not to be very sure about the reasons why they share information online, with some indicating that they have been so used to completing online forms that they do not think twice anymore when supplying the information requested by an online organization. These findings somehow trigger the premise that people's decision to share personal information might also be hinged on habits. Thus, the seventh hypothesis is advanced.

H7: The habit of sharing information positively influences adolescent Dutch Facebook users' personal information disclosure behavior.

## 3 Deterrent of Information Disclosure on Facebook

# 3.1 Risk Perception

As previously mentioned, the risks associated with the decision to share personal information to an OSN site are copious. In her book 'I Know Who You Are and I Saw What You Did: Social Networking and the Death of Privacy', Andrews [1] argues that users of online social network sites have confronted different problems of varying levels of severity as a consequence of information disclosure on such sites.

Considering the complexity in studying risk as an objective reality, researchers advanced that 'perceived risk' should be the appropriate object of investigation [32, 44]. Pavlou [32, p. 109], citing Bauer, defines risk perception as the 'subjective belief of suffering a loss in pursuit of a desired outcome'. Risk perception certainly matters since the degree of such a perception (whether high or low) predicts the extent to which an individual will perform a certain behavior [13]. In online exchanges, the perceived risks of disclosing personal information have been found to lower people's decision to share personal information to an online entity [14, 26, 30]. One can also expect that beliefs in the riskiness of sharing information to an OSN site might lower Facebook users' levels of personal information disclosure. The last research hypotheses are hinged on these findings.

H8: The perceived risks of sharing information online attributed to the actions of (a) Facebook and (b) users' network members negatively influence adolescent Dutch Facebook users' personal information disclosure behavior.

## 4 Method

## 4.1 Sampling and Respondents

To test the research hypotheses, a paper-based survey was implemented with students of a high school in the eastern part of the Netherlands. The school offers several levels

of education either to prepare students for practical training or for university education. During the implementation of the survey, approximately 1,300 students, between the age of 12 and 18, were enrolled in the school. Official approval from the school administration was acquired which made the wide scale distribution of questionnaires to target respondents possible.

With the help of some teachers, 921 students were approached to complete the questionnaire for a two-week period. Questionnaires from 66 students were eventually excluded from the dataset as they were not completed. As the study was primarily focused on students who were using Facebook at the time of the survey, questionnaires from 225 respondents who did not have Facebook accounts and from 70 students who stopped using Facebook were also removed. The two-phase exclusion of some respondent data resulted in 560 completed questionnaires that were used for statistical analysis.

Of the 560 respondents whose questionnaires were subjected to analysis, 305 (54.5 %) were females. Respondents' age ranged from 12 to 17, with a mean age of 14.43 (SD = 1.34). This age range signifies that all respondents were all adolescents – the target group for this research.

#### 4.2 Measurements

The dependent variable 'personal information disclosure' was operationalized as the frequency of posting various types of personal information such as updates of activities, opinions, likes, and photos. Five newly formulated items were used to measure the construct. Examples of items to measure the dependent variable included 'I often share my opinion on Facebook' and 'I often share photos I am in on Facebook'.

The 'benefits' construct was split into two sub-constructs: information-related benefits (e.g. using Facebook to communicate with friends) and impression management-related benefits (e.g. using Facebook to increase one's popularity). Items used to measure the two sub-constructs were derived from the scales of Ellison et al. [16] and Krasnova et al. [23]. The second predictor 'trust' was also split into two: trust in Facebook (e.g. 'I trust that Facebook has the expertise in protecting my information'.) and trust in network members (e.g. 'I trust that my Facebook friends will not jeopardize my personal information'). Items from the trust scale of Krasnova et al. [23] inspired the formulation of items used to measure both trust constructs.

'Perceived control' was measured with four items partly based on the scale of Krasnova et al. [23]. Examples of items used to measure the construct included 'With the privacy settings, I can determine who can see my personal information' and 'I keep control over information I share on Facebook'. 'Habit' was measured with four items based on the scale by Verplanken and Orbell [43]. A typical example of an item to measure the construct is 'I share information without thinking about it'. All items were measured on a five-point Likert scale with 5 representing 'strongly agree' and 1 'strongly disagree'.

To see whether the statements selected for the constructs really measured those constructs, confirmatory factor analysis using SPSS was executed. Results of the principal component analysis (PCA) using the 29 items selected for the constructs revealed that the correlations among those items were sufficiently high for PCA, as indicated by

Constructs	No. of items	а	Mean	SD
Personal information disclosure	5	.82	2.73	.93
Information-related benefits	3	.68	3.22	.85
Impression management-related benefits	2	.77	2.04	.98
Trust in Facebook and in network members	7	.84	3.66	.73
Perceived control	4	.75	4.02	.84
Habits	4	.74	2.18	.82
Perception of risks attributed to the actions of Facebook and those of network members	6	.83	2.22	.77

**Table 1.** Reliability scores and mean and standard deviation values of the different research constructs after PCA

a Kaiser-Meyer Olkin Measure Sampling of Adequacy value of. 82 (higher than the recommended value of .60) and the Bartlett's Test of Sphericity value of  $X^2$  (435) = 6,275.44, p < .001.

Furthermore, results of PCA indicated that the items measuring 'information disclosure behavior', 'information-related benefits', 'impression management-related benefits', 'perceived control', and 'habits' really loaded into the respective constructs they were supposed to measure. The items measuring 'trust in Facebook' and 'trust in network members' loaded into one factor resulting in the merging of these items into a single construct (trust). A similar thing happened to the items measuring 'perceived risks attributed to the actions of Facebook' and 'perceived risks attributed to actions of network members'. These items were also merged into one construct (perception of risks). These decisions led to the reformulation of hypotheses 2, 3, 5, 6, and 8 (from two sub-hypotheses to just one). Table 1 presents the Cronbach's alpha scores, mean and standard deviation values for the new constructs after PCA.

## 5 Results

Path analysis using AMOS 19.0 was performed to determine the significant predictors of personal information disclosure on Facebook and to test the hypothesized relationship among perceived control, trust, and risk perception. To assess the fit of the model, the following indices proposed by Kline [21] were used: model chi-square, comparative fit index (CFI), standardized root mean square (SRMR), and root mean square error of approximation (RMSEA). A model with a good fit has a CFI value > .95 and SRMR < . 08 [19] and RMSEA < .07 [35]. Test of the original model indicated that it has a poor fit:  $X^2(12) = 195.39$ ,  $X^2/df = 16.28$ , CFI = .60, SRMR = .09, RMSEA = .17.

Inspection of the modification indices revealed that fit could be improved by correlating the construct 'habit' with 'information-related benefits' and 'impression management-related benefits' and by correlating the two benefit constructs. The modification resulted in an improved fit, though still unacceptable:  $X^2(9) = 77.69$ ,  $X^2/df = 8.63$ , CFI = .85, SRMR = .06, RMSEA = .12. Analysis shows that personal information disclosure on Facebook among adolescent Dutch users is positively influenced by 'habit' ( $\beta = .33$ , p < .001), 'perceived control' ( $\beta = .32$ , p < .001), and 'information-related benefits' ( $\beta = .18$ , p < .001), Hypotheses 7, 4, and 1a are therefore, supported; while hypotheses 1b, 2, and 8 are not.

Additionally, 'trust' negatively influences 'risk perception' ( $\beta$  = -.30, p < .001), while 'perceived control' positively influences 'trust' ( $\beta$  = .30, p < .001). 'Perceived control', however, does not negatively influence 'risk perception'. Hence, hypotheses 3 and 5 are also supported, while hypothesis 6 not. Moreover, 'habit' positively correlates with 'information-related benefits' ( $\beta$  = .17) and 'impression management-related benefits' ( $\beta$  = .25), while the two benefit constructs also positively correlate with each other ( $\beta$  = .24).

As the results indicate that only the positive determinants (habit, perceived control, and information-related benefits) and not the negative determinant (risk perception) have statistically significant effect on the dependent variable of interest, the model was further modified by removing the 'risk perception' construct to see whether or not its fit would improve. The removal of that construct in the model resulted in a substantially good fit:  $X^2(6) = 22.37$ ,  $X^2/df = 3.73$ , CFI = .96, SRMR = .03, RMSEA = .07.

This final model shows that information disclosure is still positively influenced by 'habit' ( $\beta=.33,\,p<.001$ ), 'perceived control' ( $\beta=.32,\,p<.001$ ), and 'information-related benefits' ( $\beta=.18,\,p<.001$ ). 'Perceived control' still positively influences 'trust' ( $\beta=.30,\,p<.001$ ). Moreover, the correlations between 'habit' and the two benefit construct ( $\beta=.17$  for information and  $\beta=.25$  for impression management) and between information- and impression management-related benefits ( $\beta=.24$ ) are still significant. Finally, even with the removal of 'risk perception' in the model, the effect of 'trust' on personal information disclosure remains statistically insignificant.

# 6 Discussion and Future Research Directions

As underscored in the introduction, approximately 80 % of the total number of individuals aged 12 to 18 in Netherlands are active users of Facebook, with 93 % of people in that age category active in other social media platforms [7]. With this massive number of active OSN site users, one can only wonder at the amount of personal information that is somehow made public through Facebook. Despite what has been known about the negative consequences of information disclosure on OSN sites such as Facebook, however, sharing and posting various types of personal information on such sites are unlikely to go downhill in the next few years. This study investigated the determinants and the deterrent of personal information disclosure on Facebook among adolescent Dutch users.

Attention to 'habits' as a predictor of personal information disclosure has not been very high in previous studies, which tended to take a more rational view on the mechanism behind people's information disclosure behavior. From a highly rational standpoint, personal disclosure on OSN sites is believed to be influenced by factors such as trust [10] and the benefits offered by disclosure [23]. It has been known, however, that some people are so used to completing online forms that they do not think twice anymore whenever they are asked to supply personal information in a totally different situation [37].

Results of this study reveal that 'habit' strongly predicts the personal information disclosure behavior of adolescent Dutch FB users. Nonetheless, the finding that respondents' perception of control over their personal information also determines information disclosure seems to suggest that respondents do not just habitually and blindly share information without taking into account the possible negative consequences of disclosure. The fact that both 'habit' and 'perceived control' contribute to disclosure on Facebook implies that although respondents may have been accustomed to sharing personal online, this decision to share is also governed by a consideration of the degree of control they have over their information.

Information-related benefits, such as transmitting information to network members, are also statistically significant predictors of information disclosure. What is surprising, however, is the statistically insignificant effect of impression management-related benefits on disclosure, considering that adolescents are claimed to have a strong propensity to present themselves to their social networks as a way to affirm their emerging identities [15]. These results somehow echo the findings of Krasnova et al.'s [23] study – that while relationship building through information exchange prompts the decision to share information, self-presentation is not a relevant determinant of that decision at all.

The seeming irrelevance of impression management-related benefits in triggering personal information disclosure could be attributed to respondents' low valuation of these benefits. This is evidenced by the low mean value of the aforementioned construct. An implication, hence, is that when adolescent Dutch Facebook users post information on their profiles, the action is motivated primarily by the need to maintain offline connections in an online environment and not by the need to be popular or be positively viewed by others.

The effect of trust on disclosure is also statistically insignificant. Trust, as a construct in this study, has a relatively complex nature. Initially it was surmised that Facebook users' trust could be measured in relation to two trust targets – Facebook and members of the user's network. Results of factor analysis, however, indicated that the items measuring 'trust in Facebook' and 'trust in network members' do not measure two different constructs but just one single construct. This suggests that respondents had difficulty distinguishing the two trust targets from each other.

Discussion of the impact of trust on information disclosure must be done in relation to the effect of risk perception. The negative effect of risk perception on information disclosure is not statistically supported. On the contrary, the negative relationship between trust and risk perception has been found to be statistically significant – a result very much similar to what previous studies [2, 4, 20] have indicated. While respondents expressed high trust in both FB and in their network members, the relevance of trust as a predictor of information disclosure might have been reduced by respondents' low levels of risk perception.

Respondents' high levels of trust and low levels of risk perception could be partly explained by how much control they believe to have over their personal information. When people are convinced of their ability to manage their information, their trust in the parties receiving the information might increase, which also reduces their perception of the risks of disclosing information.

The research described in this paper provides a starting point for understanding the relationship between habits and personal information disclosure, as the impact of the former on the latter is not yet fully understood. When looking at the possible relationship between these two constructs, one could focus on the interaction of habit with the individual's age as a determinant of disclosure. Furthermore, future research could also investigate the extent to which the habit of information disclosure might be determined by information type. It is highly likely that some people are habitual disclosers of photos but not of their views and thoughts on issues and things.

Research into the impact of online network size is something that has not yet received substantial research attention. A study by Young and Quan-Haase [48] reported that the amount of personal information disclosed on OSN sites depends on the sharer's network size. Despite this finding, however, it remains unknown whether or not the proportion of network members with whom OSN users share strong ties contributes to their decision to post certain types of personal information on Facebook.

While people share personal information on OSN sites for the many benefits that can be derived from disclosure, OSN researchers are still to understand the link between various types of disclosure benefits and the types of information to disclose. It is imaginable that entertainment- or enjoyment-related benefits could shape OSN site users decision to post photos on Facebook but not the decision to post their views on political matters. Further still, impression management-related benefits might prompt OSN site users to post their daily activities but not their frustration with the services of a certain telephone company.

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