Sharing the 'Real Me' – How Usage Motivation and Personality Relate to Privacy Protection Behavior on Facebook

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Abstract. Although social networks like Facebook have become an important part of social communication and daily life for many people, most users have concerns regarding their privacy on Facebook. In order to gain a deeper understanding of how users try to protect their private data on Facebook, we conducted an online survey with 280 German Facebook users. We used regression analyses to investigate if usage motivation and personality relate to the management of privacy settings as well as the deployment of other protection strategies in Facebook, such as blocking certain contacts or deleting a post or photo/video tag. Our results showed that Facebook users with rather lax privacy settings have a greater feeling of being meaningful and stimulated when using Facebook than users with rather strict privacy settings. Furthermore, Facebook users scoring high on extraversion and low on agreeableness tend to use more other protection strategies besides the management of privacy settings. However, no association could be found between usage motivation and the deployment of other protection strategies on the one hand, and between personality and the management of privacy settings on the other hand. The results indicate that it is important for privacy researchers as well as product and privacy intervention designers to consider the user's motivation to share personal data, because only if privacy studies and interventions account for this important factor, it is possible not only to gain a complete picture of the privacy behavior of users, but also to influence it.

Keywords: Facebook · Needs · Personality · Privacy · Privacy protection strategies · Privacy settings · Social network services · Usage motivation

1 Introduction

For many people, social networks like Facebook have become an important part of their daily life and social communication processes [42]. Despite the numerous advantages and possibilities Facebook offers to its users, many of them have mixed feelings when it comes to the disclosure of personal data on Facebook. Indeed, Acquisti and Gross [1] showed that most Facebook users had more concerns related to privacy

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than to terrorism or environmental pollution. Although their privacy concerns do not seem to stop users from sharing personal information on Facebook entirely [42], numerous studies indicate that users apply different protection strategies to guard their data, such as untagging photos, deleting posts and managing their privacy settings [6, 8, 20, 41]. In order to gain a deeper understanding of the deployment of different privacy protection strategies, more research is needed regarding the influence of potentially relevant factors like personality [38] and motivation to share data [16]. To close this gap, we conducted a survey with 280 Facebook users. Using regression analysis, we took a first step in showing how personality and motivation to use Facebook (i.e. intended fulfillment of various needs through Facebook usage) can be used to predict privacy protection behavior.

Our contributions are two-fold:

- We contribute to the theoretical understanding of privacy behavior on social networks by demonstrating the importance of usage motivation.
- Our results indicate how certain personality characteristics are related to the deployment of different privacy protection strategies.

The remainder of this paper is organized as follows: The second chapter gives an overview of related work, the third chapter provides the theoretical background as well as the research questions, the fourth chapter focuses on the research methodology and the fifth chapter contains the analysis and results of our study. Finally, the research findings are discussed in chapter six.

2 Related Work

A number of studies have dealt with the deployment of different privacy protection strategies by Facebook users. For example, Debatin et al. [6] showed that Facebook users who had recently experienced a personal privacy invasion were more likely to alter their privacy settings compared to users who just heard about a privacy invasion experienced by other users. Young and Quan-Haase [41] found that university students mainly adopted privacy protection strategies that restricted access to their personal data for different members of the Facebook community, rather than strategies that would allow them to control data access for third parties. Furthermore, they showed that university students do not use fictitious information as protection strategy, since this would lead to confusion among friends and peers. Another study by Staddon, Acquisti and LeFevre [36] concerning the use of privacy protection strategies on Facebook not only showed that the controlling of post visibility is strongly correlated with the deletion of posts, but also that users who value privacy features most generally show more privacy actions.

Furthermore, the results of Peters, Winschiers-Theophilus and Mennecke [25] indicate that US users would rather remove friends from their contact list than change their privacy settings to restrict the visibility of their data, whereas Namibian users refuse from the deletion of friends due to the concern of being rude. Therefore, 50% of the participants reported that they restricted some friends from seeing all of their posts.

They further showed that US users tend to update their privacy settings usually when they are looking for or after they found a new job.

Beyond culture, other demographic factors seem to influence privacy protection behavior as well. Female users are more likely to have a friends-only Facebook profile [37] and tend to use a more diverse set of technological privacy tools (i.e. protection tools implemented in the social network site itself) than males [7, 19], maybe because women generally have more privacy concerns related to safety (e.g., stalking) and therefore transfer their protection strategies to the online context. When it comes to teenagers, however, Feng and Xie [11] found that females are indeed more likely to set their profile to private and adopt more privacy-setting strategies, but do not express more privacy concerns. Their results further suggest that older teenagers tend to implement more privacy protection strategies (e.g., deleting someone from their friends list, deleting older posts, block people, untag photos), whereas younger adults are more likely to show a wider use of technological privacy tools than older adults [19], maybe due to greater knowledge of and skills in using these technologies.

Ross et al. [28] suggest that the motivation someone has to use Facebook (e.g., to communicate, seek social support, be entertained) might also be useful in understanding Facebook usage behavior. Using factor analysis, Sheldon [33] identified six motives for using Facebook: relationship maintenance, passing time, interacting in a virtual community, entertainment, coolness and companionship. Facebook usage for reasons of relationship maintenance was associated with a greater number of Facebook friends, whereas usage for entertainment purposes and passing time significantly predicted frequent change of one's Facebook profile. Further research on this topic [35] showed that Facebook users with high levels of self-disclosure were more satisfied with Facebook's ability to entertain and pass time. Furthermore, Hollenbaugh and Ferris [13] found that Facebook usage for exhibitionism and relationship maintenance is associated with larger amounts of disclosed personal information. They also showed that usage for relationship maintenance is associated with disclosing more breath of information in Facebook, whereas the depth of information disclosure was found to be related to the usage motivation 'interacting in a virtual community'. The results of Waters and Ackerman [40] suggest that Facebook users disclose their data to share information with others, to store information and being entertained, to keep up with trends and to show off. On the other hand, Krasnova et al. [17] found evidence for an association between self-disclosure on Facebook and relying on the convenience for maintaining relationships, building new relationships and enjoyment.

Regarding personality, Lang and Barton [18] showed that users scoring higher on agreeableness are more likely to choose direct communication with the uploader in order to remove an unwanted picture of themselves. Their results further suggest that users scoring higher on conscientiousness rather choose an indirect strategy to get rid of the unwanted picture, for example by unfriending the uploader and thereby deleting the association between the picture and their profile. Study results differ regarding the relationship of personality and general disclosure of information on Facebook: Amichai-Hamburger and Vinitzky [2] found that extraverts are less and neurotic and persons scoring high on openness to experience are more likely to disclose personal information, whereas Correa et al. [5] showed that extraverts tend to post more pictures

and information about their activities. In another study [23], highly agreeable users were found to post more content about themselves, while at the same time, users scoring high on agreeableness, conscientiousness, emotional stability and introversion tend to experience more regret for posting inappropriate content in the past. Utz and Kramer [39] showed that narcissistic users (i.e. users who think they are a very special person who deserves a lot of attention) of the German social network 'StudiVZ' choose less restrictive privacy settings, but this effect did not occur for users of the Dutch social network Hyves.

3 Theoretical Background and Research Questions

3.1 Need Fulfillment

The Uses and Gratification Theory states that people decide to use a specific medium (e.g., Facebook) if it can gratify their social and psychological needs [10, 15]. Active participation in online social networks like Facebook is associated with various psychological and social needs. Three of them are innate psychological needs that, according to self-determination theory (SDT) [29], form the basis for self-motivation and personality integration: (a) autonomy, (b) competence and (c) relatedness [21, 27]. Autonomy refers to the feeling that one's activities are self-chosen and self-endorsed, competence describes the perception of being effective in one's activities and relatedness means a sense of closeness with others. Based on a set of studies that build on the most established theories concerning psychological needs, Sheldon et al. [32] identified a set of ten needs that have the potential to create a positive experience. Of these ten needs, seven have shown to be of particular importance for users dealing with interactive products [12]. In addition to the three fundamental needs postulated by SDT, these are: (d) meaningfulness, (e) pleasure-stimulation, (f) security and (g) popularity-influence. Meaningfulness refers to the feeling that one is moving toward an ideal version of oneself, whereas pleasure or stimulation addresses a hedonic desire to experience pleasure and be stimulated. Security refers to a sense of order and predictability and popularity-influence describes the ability to 'win friends and influence people' [4]; as cited in [32]. The general association between Facebook usage and need fulfillment leads us to the following research questions:

RQ1a: Do Facebook users with strict and those with lax privacy settings differ pertaining to the needs that motivate them to use Facebook (i.e. (a) autonomy, (b) competence, (c) relatedness, (d) meaningfulness, (e) pleasure-stimulation, (f) security and (g) popularity-influence)?

RQ1b: Do Facebook users who deploy certain privacy protection strategies besides the management of privacy settings and those who do not differ pertaining to the needs that motivate them to use Facebook (i.e. (a) autonomy, (b) competence, (c) relatedness, (d) meaningfulness, (e) pleasure-stimulation, (f) security and (g) popularity-influence)?

3.2 Personality Traits

Beside psychological needs, recent study results indicate that social network participation is influenced by certain personality traits [2, 3, 5, 23]. Certainly the most common model of personality is the five factor model, also called 'Big Five personality traits', which describes human personality on the basis of five dimensions: (a) openness to experience, (b) conscientiousness, (c) extraversion, (d) agreeableness and (e) neuroticism (i.e. emotional stability) [22]. Although the 'Big Fives' have been mainly used to describe frequency and intensity of Facebook usage [2, 28] or the deployment of specific Facebook functions like chats or timeline posts [30] so far, they are likely to be associated with the deployment of certain privacy protection strategies as well [18]. We therefore add the following research questions:

RQ2a: Do Facebook users with strict and those with lax privacy settings differ pertaining to their personality traits (i.e. (a) openness to experience, (b) conscientiousness, (c) extraversion, (d) agreeableness and (e) neuroticism)?

RQ2b: Do Facebook users who deploy certain privacy protection strategies besides the management of privacy settings and those who do not differ pertaining to their personality traits (i.e. (a) openness to experience, (b) conscientiousness, (c) extraversion, (d) agreeableness and (e) neuroticism)?

4 Research Methodology

We conducted an online survey with 280 German Facebook users. All questions were implemented in SoSci Survey [24] and presented in German. It took participants about 30 min to complete the whole survey. To recruit participants, the questionnaire link was sent to 270 German student mailing lists. Of the respondents, 71.8% were female and 27.1% were male (1.1% did not specify their gender), ranging in age from 18 to 45 years (M = 22.84, SD = 3.76). Five Amazon coupons á 20€ were drawn among participants. Psychology students from our own university received course credits.

4.1 Measures

Various items were used to assess need fulfillment, personality traits, privacy settings, other privacy protection strategies and demographics. To increase reliability and validity, items are based upon previously validated instruments whenever available. Item formulation prompted participants to answer as accurately as possible. To achieve this goal, formulations like 'What do you think…' or 'Could you please estimate…' were avoided, and where possible it was spoken in terms of facts ('How often do you…' or 'How many times do you…' etc.). Additionally, items that asked for content that could not be easily found by the participants included click-path indications to point to where the content of the item could be found (e.g. for item PS03 'Home → Click on the lock symbol on the top right → 'Who can see my stuff?''). Two filtering questions were

Table 1. Items used to assess privacy settings (PS) and the deployment of other privacy protection strategies (OS)

Nr.	Item
PS01	Is it possible to find your profile via Google or other search engines? Yes (6) No (0)
PS02	Have you ever changed the default privacy settings on Facebook? Yes (6) No (0) I don't know (0)
PS03	Who can see your Facebook profile and its contents? Only you (6) User-defined (selected people and groups) (3) Only your Friends on Facebook (3) Friends except Acquaintances (3) Anyone on or off Facebook (0)
PS04	Do you have to agree first if other people try to tag you in a post/photo/video? Yes (6) No (0)
PS05	Who is able to see your e-mail address? Your Friends (4) Friends of Friends (2) Everyone (0) Data not provided on Facebook (6)
PS06	Who is able to see your telephone number? *(answer options see PS05)*
PS07	Who is able to see your current location? Only you (6) User-defined (selected people and groups) (4) Your Friends on Facebook (4) Friends of Friends (2) Anyone on or off Facebook (0) Data not provided on Facebook (6)
PS08	Who is able to see your birthplace? *(answer options see PS07)*
PS09	Who is able to see your date of birth? *(answer options see PS07)*
PS10	Who is able to see your relationship status? *(answer options see PS07)*
PS11	Who is able to see your family relations? *(answer options see PS07)*
PS12	Who is able to see your employer? *(answer options see PS07)*
PS13	Who is able to see your educational institution? *(answer options see PS07)*
OS01	Do you use the blocking feature? Yes No
OS02	Have you ever deleted a post on your time wall to prevent other people from reading it? Yes No
OS03	Have you ever provided incomplete or fictitious information on Facebook on purpose to prevent other people from collection information about you? Yes No
OS04	Have you ever deleted a tag on a photo or video of you? Yes No

used to exclude participants who do not use Facebook on a regular basis and those who use it as part of their working activity and not for private purposes. Five items were used to assess the participants' gender, age, level of education, nationality and duration of Facebook usage.

To assess need fulfillment trough Facebook usage, we used the Needs Scale developed by Diefenbach, Lenz and Hassenzahl [9]. The Needs Scale evaluates the extent to which an interactive product (e.g. Facebook) fulfills the seven postulated needs that are associated with the use of interactive products (autonomy, competence, relatedness, meaningfulness, pleasure-stimulation, security and popularity-influence). Items corresponding to each need are presented as continuation of the sentence 'When using the product, I generally feel that…'. All items were measured on a 5-Point Likert scale with 1 representing 'strongly disagree' and 5 'strongly agree'.

Personality traits were assessed with the BFI-10 scale, a brief version of the Big Five Inventory developed by Rammstedt and John [26]. In this 10-item version, each Big Five personality construct is assessed with two items. All items were measured on a 5-Point Likert scale with 1 representing 'strongly disagree' and 5 'strongly agree'.

A total of thirteen items was used to measure the participants' privacy settings. Answer options matched the privacy setting options available on Facebook at the time of questionnaire development (12/20/2015). Four items corresponding to the deployment of other privacy protection strategies were developed in order to evaluate to which extent users do protect their private information from undesired (public) access. The items used to assess privacy settings (PS) as well as other privacy protection strategies (OS) can be found in Table 1.

5 Analysis and Results

5.1 Calculation of Privacy Scores

Privacy Settings. For statistical analysis, a score between zero and six points was assigned to every answer option of the privacy setting items (see Table 2). Depending on his or her answers, a privacy setting score was calculated for every participant by summing up the individual answer scores. The calculated privacy setting scores range from 15 to 78 points, with 78 being the maximum reachable. Table 2 summarizes the distribution of the scores across participants.

Other Privacy Protection Strategies. To calculate a score for the deployment of other privacy protection strategies besides the management of privacy settings, another score was calculated by summing up the positive answers for each protection strategy. The calculated protection strategy scores range from 0 to 4 points ($M = 2.16$, $SD = 1.13$), with 4 being the maximum reachable (Table 2).

Table 2. Distribution of privacy setting scores

N	280	Percentiles								
Mean	58.66	P_{10}	P_{20}	P_{30}	P_{40}	P_{50}	P_{60}	P_{70}	P_{80}	P_{90}
SD	11.39	41	51	55	57	61	63	67	68	71
Minimum	15									
Maximum	78									

5.2 Examination of the Research Questions

Need Fulfillment

RQ1a. Linear regression analysis was used to test if Facebook users with strict and those with lax privacy settings differ pertaining to the needs that motivate them to use Facebook. All seven needs were entered as predictors, whereas the privacy setting score was used as dependent variable. The resulting regression model exhibited an adjusted R^2 of .049, thereby explaining a total of 5% in the variance of privacy setting management ($F = 3.039$, $p < .05$). However, only meaningfulness was found to be of significant predictive power ($\beta = -.274$, $t = -3.36$, $p < .001$), with higher values of meaningfulness indicating the usage of lax privacy settings.

To further investigate the relationship between privacy settings and usage motivation, we compared the need values for the participants with very lax privacy settings ($\leq 10\%$, i.e. percentile 10) to the values for those with very strict privacy settings ($\geq 90\%$, i.e. percentile 90+). Therefore, a multivariate analysis of variance (MANOVA) was conducted, with the seven needs serving as dependent variables and the percentile membership as independent variable.

As can be seen in Fig. 1 the participants with very strict privacy settings showed significantly different values for meaningfulness and pleasure-stimulation compared to those with very lax privacy settings. Table 3 illustrates the need profiles of both groups.

RQ1b. Analog to research question 1a, a linear regression analysis was conducted to test if Facebook users who deploy certain privacy protection strategies besides the management of privacy settings and those who do not differ pertaining to the needs that motivate them to use Facebook. Again, all seven needs were entered as predictors, whereas the protection strategy score was used as dependent variable. The resulting regression model held no significant prediction power ($F = 0.247$, $p = .973$).

Personality Traits

RQ2a. Another regression analysis was conducted to test if Facebook users with strict and those with lax privacy settings differ pertaining to their personality. Therefore, the 'Big 5' personality traits were entered as predictors, whereas the privacy setting score was used as dependent variable. The resulting regression model held no significant prediction power ($F = 1.732$, $p = .127$).

RQ2b. Analog to research question 2a, a linear regression analysis was conducted to test if Facebook users who deploy certain privacy protection strategies besides the management of privacy settings and those who do not differ pertaining to their personality. Again, the 'Big 5' personality traits were entered as predictors, whereas the

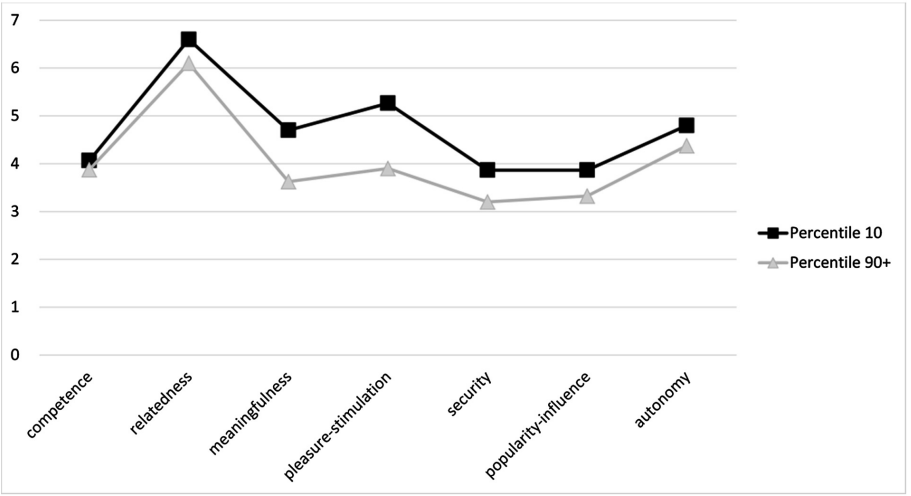

Fig. 1. Need profiles for percentile 10 and percentile 90+ of the privacy setting scores

Table 3. Results of the MANOVA testing the differences of need values for users with very strict and very lax privacy settings

Need	F-value	Sig.	Partial η^2
Autonomy	0.62	.44	.009
Competence	0.09	.77	.001
Relatedness	0.60	.44	.009
Meaningfulness	6.48	.01*	.091
Pleasure-stimulation	10.61	.002**	.140
Security	2.02	.16	.030
Popularity-influence	1.99	.16	.030

Note: *$p < .05$; **$p < .01$; ***$p < .001$

protection strategy score was used as dependent variable. The resulting regression model exhibited an adjusted R^2 of .055, thereby explaining a total of 5.5% in the variance of protection strategy deployment ($F = 4.243$, $p < .001$). Two personality traits, extraversion ($\beta = .232$, $t = 3.891$, $p < .001$) and agreeableness ($\beta = -.121$, $t = -2.045$, $p < .05$) showed a significant prediction for the deployment of other protection strategies besides the management of privacy settings.

To gain a deeper understanding of the particular protection strategies deployed depending on the specific personality of the Facebook users, we conducted individual linear regression analyses for each of the four protection strategies. The regression models showed significant predictive power for the use of the blocking function with an adjusted R^2 of .022 ($F = 2.272$, $p < .05$), the deletion of a post with an adjusted R^2 of .027 ($F = 2.542$, $p < .05$) and the deletion of a photo/video tag with an adjusted R^2 of .056 ($F = 4.289$, $p < .001$). The detailed results can be found in Table 4.

Table 4. Personality traits predictor values for the deployment of other protection strategies

Protection strategy	Personality trait	β -value	t-value	Sig.
Use of the blocking feature	Extraversion	.146	2.400	.017*
	Agreeableness	−.127	−2.116	.035*
Deletion of a post	Extraversion	.173	2.856	.005**
	Conscientiousness	−.128	−2.142	.033*
Deletion of a photo/video tag	Extraversion	.253	4.238	<.001***
	Openness to experience	−.134	−2.266	.024*

Note: *$p < .05$; **$p < .01$; ***$p < .001$

No significant prediction could be found for the use of incomplete or fictitious information. Figure 2 shows the personality profiles of Facebook users who deploy the particular protection strategies compared to those who do not.

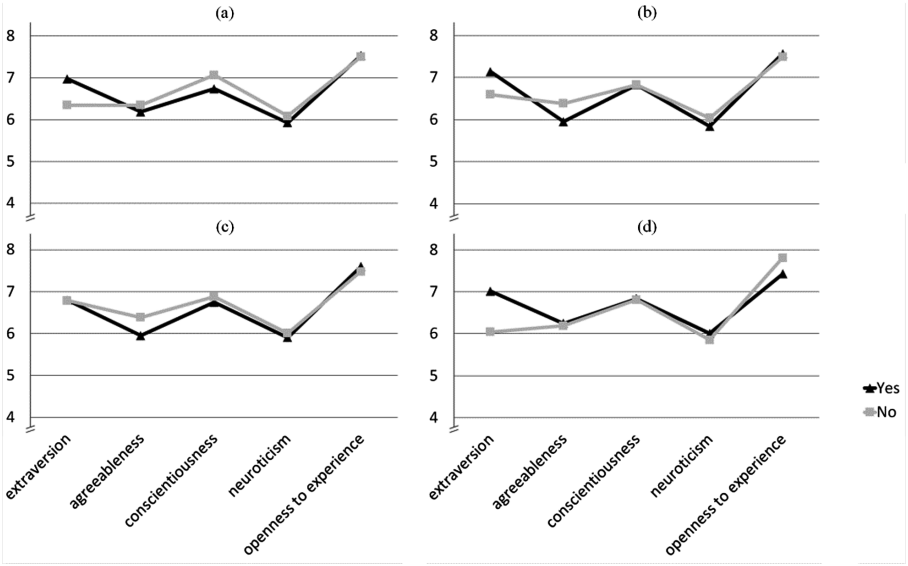

Fig. 2. Illustration of the personality traits of users who (do not) use different protection strategies. (a) Deletion of a post; (b) use of the blocking feature; (c) incomplete or fictitious information; (d) deletion of a photo/video tag

6 Discussion

The goal of this study was to investigate if usage motivation and personality relate to the management of privacy settings as well as the deployment of other protection strategies in Facebook. Our results showed that Facebook users with rather lax privacy settings have a greater feeling of being meaningful and stimulated when using Facebook than users with rather strict privacy settings. Furthermore, Facebook users

scoring high on extraversion and low on agreeableness tend to use more other protection strategies besides the management of privacy settings, such as blocking certain persons or deleting a post or photo/video tag. In detail, (1) higher values of extraversion and lower values of agreeableness are associated with the use of the blocking feature, (2) higher values of extraversion and lower values of conscientiousness relate to the deletion of posts and higher values of extraversion and (3) lower values of openness to experience relate to the deletion of photo/video tags. However, no association could be found between usage motivation and the deployment of other protection strategies on the one hand, and between personality and the management of privacy settings on the other hand.

Although the association between extraversion and use of privacy protection strategies might seem contra intuitive at first glance, it is in line with the results from Amichai-Hamburger and Vinitzky [2], who showed that extraverted users tend to place less information on their Facebook profiles than introverted users, which may be explained by the fact that extraverts rely to a greater extend on their social skills and therefore feel less need to promote themselves than introverts. At the same time extraverted users usually have a greater social network [26] and therefore more Facebook friends [2, 23], which increases the possibility of knowing some Facebook friends rather casually. To retain control about whom gets access to their personal data, extraverted users therefore possibly block some of their many contacts.

Regarding the usage motivation, none of the three fundamental needs associated with the use of a specific medium (i.e. autonomy, competence and relatedness) [10] showed a significant relationship with privacy protection behavior on Facebook. Considering the fact that the wish to be related to significant others poses one of the central usage motivations for social networks [e.g., 14, 31, 34], its lacking association with privacy protection behavior is noteworthy. Indeed, the results indicate that Facebook users have the possibility of being socially integrated and feeling related to significant others without giving up their privacy on Facebook. The desire to feel meaningful and be stimulated, on the other hand, goes along with the use of rather lax privacy settings. This could be due to the fact that users seek for stimulation by sharing a huge amount of content with as many other Facebook users as possible, thereby increasing the chance that someone likes, comments or further shares this content. The association between having lax privacy settings and fulfilling the need to feel meaningful, i.e. being the 'real self' and moving further to an ideal version of this self, is somewhat more difficult to interpret. It may be that a Facebook user perceives oneself as his or her 'real self' to a greater extend if this self is shared with as many other users as possible. At the same time, this form of self-disclosure prevents other people from getting a false picture of the particular user due to a lack of information. Looking at the need profiles in its entirety, another possible explanation could be that users with a more moderate need profile tend to have stricter privacy settings because as specific needs gain significant importance during the usage of Facebook, other considerations like privacy take a back seat and hence, users pay less attention to their privacy settings.

Finally, it can be said that personality is somewhat associated with the deployment of specific privacy protection strategies, whereas usage motivation (i.e. need fulfillment) is related to the management of privacy settings. Considering that most of the

protection strategies investigated refer at least in the broadest sense to the interaction with other people, it sounds reasonable that personality plays a role for their deployment. Privacy settings, on the other hand, are of a more technical nature and therefore are more associated with the goals one wants to reach by using Facebook.

6.1 Implications

Our results hold several implications for privacy researchers as well as designers of privacy friendly applications. First of all, when speaking about privacy, it is important to consider the context in which personal data is provided by a user. Designers of privacy friendly applications or interventions that aim to increase a user's privacy self-protection should bear in mind that users have various motivations to share their data, for example to feel related to significant others, but also to feel meaningful or to be stimulated. If an alternative privacy-friendly application cannot provide the intended gratification, users will continue to use the established, privacy-threatening applications. Equally, privacy researchers have to consider the usage motivations and needs that the investigated user aims to fulfill, as they seem to explain some of the variance in privacy setting management. Personality, on the other hand, appears to be associated with the deployment of other, more concrete and behavior-centered protection strategies like the deletion of a post or photo/video tag or usage of the blocking feature. Hence, it is important for privacy researchers to assess a wide range of privacy protection strategies and not only focus on the management of privacy settings. Product designers should account for the fact that less extraverted users deploy fewer privacy protection strategies, maybe because they feel a stronger need to promote themselves online. Therefore, innovative technological privacy friendly solutions should enable introverted users to construct an impressive online identity without revealing too much of their private data.

6.2 Limitations

Like any survey trying to assess actual behavior, this study has various limitations that should be kept in mind when drawing conclusions based on the results. Since we did not verify the self-reported privacy behavior, it is quite possible that participants did euphemize their privacy efforts or simply did not recall their true privacy settings. However, we tried to avoid the last point by instructing the participants to check on their actual privacy settings if they were not sure about them, and added click-paths that point to where the particular content could be found. Nonetheless, we do not know how often participants use the particular protection strategies like blocking another user, and under which circumstances they do so. Further research is needed to gain a deeper understanding of the situational and motivational factors that influence the deployment of certain protection strategies. Furthermore, the BFI-10 scale, which we used to measure the big five personality traits, is known for rather low levels of reliability, compared to the long version [26]. We decided to use it nonetheless, because a methodologically satisfying measurement of personality based on a sufficient amount

of items would have taken about thirty minutes, which we considered as inappropriate for the present study design. However, the low reliability of personality measurement should be kept in mind when interpreting the study results. Another limitation is the use of regression analyses based on self-reported data, which allows no interpretation of causality. Further studies are needed to provide an experimental investigation of actual privacy behavior and the causal effects of usage motivation and personality. Furthermore, we limited our research to the context of Facebook usage. Although Facebook is the most popular social network nowadays, we do not know if the results can be generalized to other privacy related contexts like the installation of smartphone apps or the encryption of e-mail communications. Since most participants stem from university populations, the sample is most likely skewed (i.e. younger, higher educated and eventually over-averagely tech-savvy), compared to the general population. Further studies should be based on more heterogeneous samples to allow for generalization.

6.3 Future Work

Our next steps will contain a more generalized approach to investigate the effects of usage motivation on privacy decisions and behavior. Since the need for meaningfulness and pleasure-stimulation seem to be associated with privacy related behavior in the social network context, it could be that other needs play a significant role in other contexts. If we are able to identify a pattern which can be used to predict whether a user pays more or less attention to non-primarily usage considerations like the own privacy, this would be very valuable for the design of privacy interventions. Equally, usage motivations/needs could be beneficial for defining the context a service or application is used in on a more general level than 'social networks' or 'e-commerce' and thus provide new insights into differences between users of the same service or application.

6.4 Conclusion

Investigating 280 German Facebook users, we found that usage motivation significantly predicts the management of privacy settings, whereas personality plays a significant role in the deployment of other privacy protection strategies such as use of the blocking feature or deletion of a photo or video tag. In detail, extraverted users tend to deploy a wider range of privacy protection strategies than rather introverted users. Regarding the management of privacy settings, the use of lax settings is associated with a greater feeling of being meaningful and stimulated when using Facebook. Product designers and privacy researchers therefore should consider the context in which users provide personal data, i.e. what motivates them to share their data in the first place. Only if privacy studies and interventions account for these important factors, it is possible to not only gain a complete picture of but also to influence the privacy behavior of users.

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