

# Socially desirable responding within the context of privacy-related research: A personality perspective



## Authors:

Karl van der Schyff<sup>1</sup>   
 Stephen Flowerday<sup>1</sup>   
 Karen Renaud<sup>2</sup> 

## Affiliations:

<sup>1</sup>Department of Information Systems, Faculty of Commerce, Rhodes University, Grahamstown, South Africa

<sup>2</sup>Department of Computer and Information Sciences, Faculty of Science, University of Strathclyde, Glasgow, United Kingdom

## Corresponding author:

Karl van der Schyff,  
 k.vanderschyff@ru.ac.za

## Dates:

Received: 20 Jan. 2022  
 Accepted: 22 Feb. 2022  
 Published: 29 Apr. 2022

## How to cite this article:

Van der Schyff, K., Flowerday, S. & Renaud, K., 2022, 'Socially desirable responding within the context of privacy-related research: A personality perspective', *South African Journal of Information Management* 24(1), a1507. <https://doi.org/10.4102/sajim.v24i1.1507>

## Copyright:

© 2022. The Authors.  
 Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

## Read online:



Scan this QR code with your smart phone or mobile device to read online.

**Background:** Socially desirable responding within the context of self-reported surveys is a well-known and persistent problem that plagues quantitative studies. Such forms of responding are particularly problematic within the context of personality-based studies that investigate privacy-related decision-making. In such instances, certain respondents may feel pressured to provide socially desirable responses, which reduces the overall quality of the collected data.

**Objectives:** The objective of this study was to evaluate the extent to which the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness and neuroticism) elicit socially desirable responses within the context of privacy-related decision-making.

**Method:** To evaluate their hypotheses, the authors empirically situate their study within the context of respondents' intended use of Facebook privacy settings. To this end, 576 survey responses were analysed using partial least squares structural equation modelling (PLS-SEM).

**Results:** It was found that some personality traits were indeed significantly related to socially desirable responding – albeit not always as expected. For example, highly agreeable individuals were unlikely to provide socially desirable responses: choosing honest responses. Neuroticism, on the other hand, had the opposite effect.

**Conclusion:** Based on the results, the authors conclude that neurotic individuals seem predisposed towards responding in a socially desirable manner within the context of privacy-related surveys. The authors, therefore, advise researchers within the field of privacy-based personality studies to take care when analysing their results.

**Keywords:** PLS-SEM; privacy settings; Facebook; social desirability; path modelling.

## Introduction

Social networking sites (SNSs) have become an integral part of daily life, mainly because they facilitate and fulfil (at least to some extent) individuals' needs to belong. They actively encourage their users to share personal information. Whilst SNSs assist geographically separated individuals to stay in touch, there are also significant privacy concerns related to indiscriminate sharing. Such indiscriminate sharing may unwittingly sacrifice online privacy. Given that Facebook is one of the most popular SNSs, the authors have used it as their empirical case. The authors argue this to be an appropriate choice given the recent high profile privacy scandals, which have revealed the true breadth and depth of Facebook's collection and use of personal information (Brown 2020). Over- or unwise-sharing exacerbates privacy loss, something that has the potential to be harmful. For example, Househ (2011) wrote about the negative and unintended consequences of sharing health data on Facebook, whilst Taraszow et al. (2010) highlighted the harm that can ensue from teenagers sharing personal information.

Researchers often use self-reported survey responses to study important social media issues, such as those outlined here. There is, however, some anxiety about the reliability of such self-reported survey responses within the context of privacy research (Af Wählberg & Dorn 2015). One reason for such anxiety is the tendency for certain individuals to provide socially desirable responses. Although such responses may be related to the privacy paradox, we do not centre our argument thereon. This is especially so because the existence of the privacy paradox is both supported (Dienlin & Trepte 2015) and questioned (Solove 2021). Instead, this study focuses on the impact of Big Five personality traits on a tendency to provide socially desirable responses within the context of self-stated privacy-related survey responses. Our results can inform future privacy-related research by highlighting the personality traits that could lead to socially desirable responses being given to surveys. This could help researchers (and organisations) that make use of self-reported

surveys to improve the quality of their data and associated conclusions. This is especially pertinent within context of personality-based privacy decision-making.

This article is structured as follows: after providing a brief background, several hypotheses are developed, followed by an outline of our methodological approach, analysis and results. This is followed by a brief discussion of our results and an outline of the limitations of this study and areas for future research.

## Hypothesis development

Many researchers use self-reported surveys to explore privacy-related decision-making. The veracity of the findings relies on respondents being honest and frank in their responses. One aspect that can confound such research is that survey respondents might provide socially desirable rather than honest responses (Milne, Rohm & Bahl 2004). Therefore, to use surveys in personality-based privacy research, such forms of socially desirable responding should be taken into account. In this article, the Big Five personality traits' influence on privacy-related decision-making is considered and empirically situated within the context of Facebook privacy: specifically, respondents' intention to use their Facebook privacy settings. Often referred to using the acronym OCEAN, the Big Five personality traits that this study explores includes: *openness*, *conscientiousness*, *extraversion*, *agreeableness* and *neuroticism* (Costa & McCrae 1992).

### Openness

Individuals high in openness (OPEN) are naturally inquisitive and intelligent and revel in new experiences (Vishwanath, Xu & Ngoh 2018). They are, however, often labelled as 'anti-establishment'. In other words that which is trendy and new is embraced whereas established practices are questioned. Aside from general characteristics, most studies have found either weak, non-significant or negative correlations between openness and social desirability. For example, Stober (2001) found openness to be uncorrelated with social desirability during the development of their social desirability scale (i.e. SDS-17) – specifically from a validity perspective. Evidence suggests that open individuals are also inclined to overcome those inhibitions that prevent them from acting as expected (i.e. to exhibit their best behaviour). This is particularly important given that Uziel (2010) also reports non-significant results between openness and impression management when evaluating the relationship of the latter concept with social desirability. Similar results are reported by Crant and Bateman (2000), who found no significant correlation between openness to experience (another name for openness) and social desirability. Tangentially, and in an effort to discern answering style from undesirable answering, McCrae and Costa (1983) found little evidence to suggest that openness would provide socially desirable answers. What they did find was a significant negative relationship between openness and the tendency to lie when completing self-

reported instruments. Similar significant (and negative) results are reported by Flynn (2005) in a study about interracial attitudes, as well as by Egelman and Peer (2015). Together, the aforementioned provide evidence to suggest that open individuals are, in the least, not likely to provide socially desirable answers – albeit within a more psychometric context. Of course, given the focus on social desirability within the context of Facebook-based privacy behaviour, the authors are also compelled to provide personality-based evidence from a privacy perspective.

Although relatively few studies have been conducted on the direct relationship between openness and Facebook privacy (and social desirability), there are some who have theorised the relationship of openness with privacy settings. For example, Van der Schyff, Flowerday and Lowry (2020) found openness to exhibit a significant positive relationship with Facebook users' attitude towards privacy settings when using Facebook apps. A study on the correlations between the Big Five personality traits and various privacy protective behaviours, found openness to significantly predict specific privacy protection strategies. For example, deleting a tag associated with a photo or video (Gerber, Gerber & Hernando 2017). It has also been demonstrated that openness is significantly related to privacy protective behaviour within the context of people periodically reviewing their privacy settings (Van der Schyff & Flowerday 2021). Given their inquisitive and intelligent nature (amongst other characteristics), it is therefore likely that such individuals will make informed privacy decisions. The authors therefore hypothesise that:

**H1a:** Openness will exhibit a significant negative relationship with social desirability. In other words, individuals who are high in openness are unlikely to provide socially desirable answers.

**H1b:** Openness will exhibit a significant positive relationship with intention to use privacy settings.

### Conscientiousness

Unlike open individuals, those high in conscientiousness (CON) are conformist and adhere to societal norms. Conscientious individuals are also cautious, organised and tend to be competitive (Hao, Yang & Shi 2019). Studies focused on the relationship between conscientiousness and social desirability have found significant positive correlations when completing psychometric evaluations (Ones & Viswesvaran 1996). Stober (2001) also found significant overlap between conscientiousness and desirable responding, specifically when evaluating the discriminant validity of the SDS-17 scale. Similar positive correlations with related concepts such as impression management are reported by Uziel (2010) and Stöber, Dette and Musch (2010), indicating that highly conscientious individuals are wary as to the way their responses may influence favourable impressions. Stöber et al. (2010) also found conscientiousness to be positively correlated with self-deceptive enhancement (SDE) – a means to provide positively biased responses to maintain positive

self-esteem. It is therefore evident that highly conscientious individuals may, in certain circumstances, provide socially desirable answers.

As characterised above, individuals high in conscientiousness are cautious when it comes to engaging in privacy protective behaviour. This applies to both organisational contexts and social media contexts. For example, Van der Schyff et al. (2020) found conscientiousness to be positively related to privacy attitudes, specifically within the context of privacy settings when using Facebook apps. Similar results are reported by McCormac et al. (2017), as well as Van der Schyff and Flowerday (2021), who found conscientiousness to be positively related to information security awareness. The latter authors also found a significant positive relationship between conscientiousness and the intended use of Facebook privacy settings. Further research on the security influence of the Big Five personality traits also found a significant positive relationship between conscientiousness and cybersecurity behaviour (Shappie, Dawson & Debb 2019). Given the evidence presented, the authors hypothesise that:

**H2a:** Conscientiousness will exhibit a significant positive relationship with social desirability. In other words, individuals who are high in conscientiousness are likely to provide socially desirable answers.

**H2b:** Conscientiousness will exhibit a significant positive relationship with intention to use privacy settings.

## Extraversion

Individuals high in extraversion (EXT) are outgoing, sociable and assertive (Costa & McCrae 1992). They are also more likely to engage in risky behaviour (Pentina et al. 2016). However, and despite their social nature, some research has found extraversion not to be highly correlated with social desirability. For example, Ones et al. (1996), as well as McCrae and Costa (1983), found low (almost negligible) correlations between extraversion and social desirability. A similar (low) correlation between extraversion and social desirability is reported by Crant (1995) – albeit in a study focused on job performance amongst real estate agents. Tangentially, studies on impression management have also found either non-significant or negative correlations with extraversion (Uziel 2010). Especially, in Uziel's (2010) study, impression management is viewed as the capacity to self-regulate impulsive (and arguably irrational) behaviour within social settings, in doing so gaining social approval within those settings as a function of socially desirable responses.

Unlike conscientious individuals, those high in extraversion typically exhibit negative attitudes towards the privacy of their personal information. Recent studies have found this to be particularly prominent within the context of social media use. For example, Van der Schyff et al. (2020) found extraverted respondents to harbour negative attitudes towards the use of Facebook privacy settings. The same applies to highly extraverted individuals' intention to

periodically review their privacy settings (Van der Schyff & Flowerday 2021). Related work – specifically that within the field of privacy concerns – has also found extraversion to be either negatively related to privacy concerns (Pentina et al. 2016) or not significantly related at all (Osatuyi 2015). We argue that highly extraverted individuals are likely not to value the privacy of their personal information to the same extent as some of the other traits. The authors therefore hypothesise that:

**H3a:** Extraversion will exhibit a significant negative relationship with social desirability. In other words, individuals who are high in extraversion are unlikely to provide socially desirable answers.

**H3b:** Extraversion will exhibit a significant negative relationship with intention to use privacy settings.

## Agreeableness

Highly agreeable individuals are sensitive and trusting and tend to be concerned about the feelings and well-being of those around them (Costa & McCrae 1992). Crucially, highly agreeable individuals tend to be honest and some studies have found these individuals to provide socially desirable answers (Stober 2001). As with some of the other traits, studies focused on the measurement of impression management (De Vries, Zettler & Hilbig 2014) and self-regulation (Stavrova & Kokkoris 2019) have also found agreeableness (AGR) to correlate with socially desirable answering. It is therefore likely that agreeable individuals will portray more positive or socially acceptable behaviour when conversing with peers in groups where they must regulate what is said. Additionally, and according to Bansal, Zahedi and Gefen (2016), agreeable individuals are likely to avoid behaviour that deviates from that which is acceptable within a certain context. Together with their socially compliant nature (Costa & McCrae 1992), this may indicate that these individuals are likely to value the privacy of their personal information. This may be exacerbated by their sensitivity to upsetting situations (Karim, Zamzuri & Nor 2009) such as the potential loss of personal information in addition to social embarrassment, especially if their personal information is used inappropriately. This also ties in with research by Junglas and Spitzmuller (2006), who found that agreeable individuals harbour privacy concerns – specifically within the context of location-based services. A similar result is reported by Tang, Akram and Shi (2020) – albeit within the context of app use. Given such concerns, a positive privacy attitude is likely. In fact, recent research has found direct evidence of such positive privacy attitudes. For example, Van der Schyff et al. (2020) found that highly agreeable individuals exhibited positive attitudes towards the use of Facebook privacy settings, specifically within the context of Facebook apps. It is therefore hypothesised that:

**H4a:** Agreeableness will exhibit a significant positive relationship with social desirability. In other words,

individuals who are high in agreeableness are likely to provide socially desirable answers.

**H4b:** Agreeableness will exhibit a significant positive relationship with intention to use privacy settings.

## Neuroticism

The final trait in the OCEAN personality model is that of neuroticism (NEU). Highly neurotic individuals are negative, suffer from impulsivity, are nervous and tend to be preoccupied with worrying (Costa & McCrae 1992). From a social desirability perspective, a number of studies report a positive relationship between neuroticism and social desirability or socially desirable answering (Thomsen et al. 2005). Similar results are reported by both Heaven and Shochet (1995) and Jackson and Francis (1998) who found neuroticism to be significantly related to the Lie Scale – albeit only for men.

Individuals high in neuroticism often experience more threats and heightened levels of anxiety. These individuals also tend to be concerned about information privacy (Junglas & Spitzmuller 2006; Van der Schyff et al. 2020). Such concerns align with recent evidence, which suggests that neurotic individuals perceive the periodic review of Facebook privacy settings positively (Van der Schyff & Flowerday 2021). As a result, it is argued that individuals high in neuroticism will value the privacy of their Facebook-based personal information. This, in turn, may result in the increased use (and review) of their Facebook privacy settings. Their anxious nature may further exacerbate not only the fear of losing control of their personal information but also the possibility of suffering security (and privacy) violations as a result of not making adequate use of these settings. Based on the given discussion, the authors hypothesise that:

**H5a:** Neuroticism will exhibit a significant positive relationship with social desirability. In other words, individuals who are high in neuroticism are likely to provide socially desirable answers.

**H5b:** Neuroticism will exhibit a significant positive relationship with intention to use privacy settings.

## Methodological approach

After receiving ethical clearance from the primary author's institutional ethics committee (ref: CIS18-10), primary data were collected as part of a large cross-sectional survey.

### Data collection and screening

A total of 651 responses were collected from citizens of the United States of America above the age of 18 who are active Facebook users. The qualifying criteria were used as part of an Amazon Mechanical Turk (AMT) human intelligence task. To improve the quality of questionnaire responses several criteria were applied, which are summarised as follows:

**TABLE 1:** Distribution of the sample demographics.

Variable	Frequency	%
<b>Gender</b>		
Male	280	48.6
Female	296	51.4
<b>Age</b>		
18–24	43	7.5
25–34	240	41.7
35–44	154	26.7
45–54	79	13.7
55–64	46	8.0
65–74	14	2.4
<b>Level of education</b>		
No degree or up to high school	228	39.6
Bachelor's degree or equivalent	280	48.6
Master's degree and above	68	11.8

Source: Van der Schyff, K., Flowerday, S. & Lowry, P.B., 2020, 'Information privacy behavior in the use of Facebook apps: A personality-based vulnerability assessment', *Heliyon* 6, 1–13. <https://doi.org/10.1016/j.heliyon.2020.e04714>

- Response completeness: Twelve incomplete responses were eliminated.
- Completion time: Questionnaire responses had to have been completed in no less than 6 min. This ensured that our resulting statistical analysis did not include responses from respondents who were 'speeding' (Zhang & Conrad 2014). Fifty-eight responses that were completed in less than 6 min were eliminated.
- Attention trap correctness: The survey included two attention trap questions, both of which had to have been correctly answered for the response to be included in the analysis. Only five respondents incorrectly answered both attention trap questions leading to their elimination.

After applying the aforementioned criteria, 576 ( $n = 576$ ) valid responses remained and were subsequently used in the development of the structural model. See Table 1 for a complete outline as to the distribution of the sample demographics.

## Measures used

All the questionnaire items were adapted from existing instruments. To evaluate an individual's personality traits, the 44-item Big Five Inventory (BFI) (John & Srivastava 1999) was used. To evaluate an individual's level of social desirability (modelled as SD in our structural model), a shortened (8-item) version of the original 33-item Marlowe–Crowne scale was used (Ray 1984). An individual's intention to use privacy settings was evaluated by adapting items from similar behavioural information privacy instruments (Parsons et al. 2017; Taneja, Vitrano & Gengo 2014).

## Analysis and results

To develop the structural model, SmartPLS v3.3.3 was used (Ringle, Wende & Becker 2015). The choice of partial least squares structural equation modelling (PLS-SEM) was driven by two factors. Firstly, the primary data were not normally distributed and secondly, PLS-SEM is particularly adept at evaluating recursive models of an exploratory nature (Hair et al. 2017). To the authors' knowledge, no studies have used a social desirability scale in this manner.

**TABLE 2:** Measurement model statistics.

Variables	AGR	CON	EXT	IUPS	NEU	OPEN	SD
Agreeableness (AGR)	<b>0.715</b>	-	-	-	-	-	-
Conscientiousness (CON)	0.472	<b>0.723</b>	-	-	-	-	-
Extraversion (EXT)	0.399	0.323	<b>0.719</b>	-	-	-	-
Intention to use privacy settings (IUPS)	0.162	0.245	-0.013	<b>0.794</b>	-	-	-
Neuroticism (NEU)	-0.461	-0.524	-0.460	-0.033	<b>0.791</b>	-	-
Openness (OPEN)	0.272	0.293	0.390	0.130	-0.218	<b>0.787</b>	-
Social desirability (SD)	-0.490	-0.208	-0.251	0.013	0.310	-0.171	<b>0.705</b>

**TABLE 3:** Path estimates.

Hypothesis	Path	$\beta$	<i>t</i> -statistic	Supported
1	a <i>Openness</i> → <i>social desirability</i>	-0.036	0.879 <sup>ns</sup>	No
	b <i>Openness</i> → <i>intention to use privacy settings</i>	0.096	2.010**	Yes
2	a <i>Conscientiousness</i> → <i>social desirability</i>	0.093	2.265**	Yes
	b <i>Conscientiousness</i> → <i>intention to use privacy settings</i>	0.267	4.897***	Yes
3	a <i>Extraversion</i> → <i>social desirability</i>	-0.026	0.689 <sup>ns</sup>	No
	b <i>Extraversion</i> → <i>intention to use privacy settings</i>	-0.128	2.472**	Yes
4	a <i>Agreeableness</i> → <i>social desirability</i>	-0.454	10.916***	No
	b <i>Agreeableness</i> → <i>intention to use privacy settings</i>	0.117	2.549**	Yes
5	a <i>Neuroticism</i> → <i>social desirability</i>	0.129	2.639**	Yes
	b <i>Neuroticism</i> → <i>intention to use privacy settings</i>	0.123	2.558**	Yes

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ ; ns, non-significant.

## Measurement model evaluation

To evaluate the measurement model, the authors first ensured that all the items exhibited acceptable outer loadings. To this end, outer loadings were assessed using a PLS-specific approach consisting of two decision criteria advocated by Hair et al. (2017):

- Eliminating items with outer loading below 0.4.
- Eliminating items with outer loadings between 0.4 and 0.7 if they do not increase the average variance extracted (AVE) value of the latent variable in question.

After assessing the outer loadings, it was ensured that all the remaining items loaded significantly (i.e. *t*-values in excess of 1.96) on their intended latent variable. The magnitude of the AVE value of each latent variable was also assessed. None of the items exhibited a *t*-value below 1.97 and all the latent variables exhibited an AVE in excess of the accepted 0.5 threshold. Based on these factors it was determined that the questionnaire satisfied convergent validity. To ensure that our model satisfied the criteria for discriminant validity, three techniques were used. Firstly, the heterotrait–monotrait (HTMT) ratios were assessed, which were all below the accepted threshold of 0.85. Secondly, the values on the diagonal of Table 2 (presented in bold), commonly referred to as the Fornell–Larcker criterion, were assessed. As a final means to assess discriminant validity, it was ensured that each item loaded the highest on its intended latent variable. Based on our assessments the model was declared valid from a convergent and discriminant perspective.

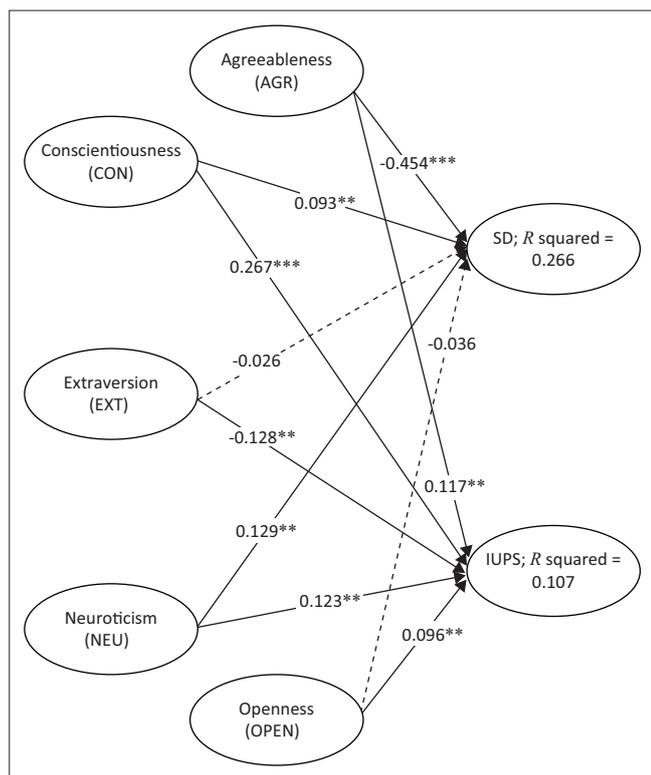
To assess the reliability of the model the Cronbach's alpha (CA) and composite reliability (CR) value of each latent variable was inspected to ensure that they were within accepted thresholds. Although the CA value for the social desirability latent variable is slightly below 0.7, the authors argue this to be an acceptable outcome given that Hair et al.

(2017) explicitly stated thresholds of 0.6 to be acceptable when creating path models of an exploratory nature. Furthermore, evaluation of the influence of social desirability within the context of Facebook privacy is exploratory. The variance inflation factor (VIF) value of each item was inspected to check for signs of multicollinearity. None of the items exhibited VIF values in excess of 5, thus eliminating multicollinearity. See Table A1 in the Appendix for a complete outline of this study's instrument and associated descriptive statistics.

## Structural model evaluation

Two indicators were used to assess the quality of the structural model. Firstly, the in-sample predictive power of both endogenous latent variables (expressed as  $R^2$ ) was inspected. In short, the  $R^2$  value of an endogenous variable explains to what extent the related exogenous variables influence the variance in the endogenous variable in question. Here, it was found that the personality traits evaluated explained 26.6% ( $R^2 = 0.266$ ) of the variance in the *social desirability* latent variable and 10.7% ( $R^2 = 0.107$ ) of the variance in the latent variable *intention to use privacy settings*. Secondly, the out-of-sample predictive power (Stone-Geisser's  $Q^2$ ) of the endogenous latent variables in the model was assessed (*social desirability* = 0.12 and *intention to use privacy settings* = 0.05, respectively). Given that both these  $Q^2$  values were in excess of 0, it was concluded that the model has an adequate amount of predictive power (Stone 1974).

As per Table 3, there is no support for hypotheses 1a, 3a or 4a. There is, however, support for hypotheses 1b and 2b. In other words, both *openness* and *conscientiousness* significantly influence *intention to use privacy settings*. Hypothesis 2a is also supported, indicating that *conscientiousness* is significantly related to *social desirability*. This provides some



\*\*\* $p < 0.01$ , \*\* $p < 0.05$ .

**FIGURE 1:** Structural model.

evidence to suggest that within the context of intended use of Facebook privacy settings, conscientious individuals may provide socially desirable answers. In addition, hypothesis 3b is also supported, indicating that extraverts are not inclined to use privacy settings. The results of this study also provide support for hypothesis 4b. Therefore, together with the result of hypothesis 4a, there is evidence to suggest that within the context of Facebook privacy decision-making, agreeable individuals tend not to provide socially desirable responses (i.e. they don't 'fake good'). Given this study's focus on the intended use of Facebook privacy settings, this suggests that these individuals' intentions are more likely to result in similar actual behaviour. In other words, they would likely use Facebook privacy settings. The results also provide support for hypotheses 5a and 5b. In particular, the significant positive relationship between *neuroticism* and *social desirability* indicates that neurotic individuals may provide socially desirable responses within the context of privacy decision-making. Considering this result within the context of the significant positive relationship between neuroticism and *intention to use privacy settings*, it can be argued that neurotic individuals are not likely to make actual use of their Facebook privacy settings, despite their intention to do so. See Figure 1 for a visual illustration of our research model.

## Discussion

It is important to emphasise that the authors are not arguing the extent to which each of the various personality traits influence Facebook privacy behaviour as a direct interaction with an individual's level of social desirability (e.g. as an

interaction term). Instead, firstly they used the eight-item Marlowe–Crowne scale to determine those traits within the Big Five that relate significantly to a tendency to provide *socially desirable* responses to privacy-related surveys. If the relationship is significant, it was also deemed appropriate to evaluate the significance of the relationship of these traits with the veracity of responses expressing an *intention to use the privacy settings*. For example, if a positive relationship is exhibited in relation to *social desirability*, those individuals who are characterised by that personality trait will tend to provide socially desirable answers and their privacy-related questions might not reflect their actual intention. The opposite is true when a negative relationship is exhibited in relation to the tendency to provide *socially desirable* responses. Their stated intention to engage with privacy settings can be taken at face value, given that it is less likely to be a socially desirable response.

The results of this study indicate that *conscientiousness*, *agreeableness* and *neuroticism* are significantly related to both *social desirability* and *intention to use privacy settings*. However, it is the significant negative relationship between *agreeableness* and *social desirability* that is of particular interest. This may, for example, indicate that the agreeable individuals are more likely to provide honest responses (not faking good). This applies specifically, to the privacy-related decision-making context. In other words, an agreeable individual's intention to use their privacy settings is likely to be honest. Within the context of this study's main objective, this implies that agreeable individuals are likely to provide less socially desirable self-reported responses when completing privacy-related surveys. We found the converse to be true for those who score high on *neuroticism*. In essence, neurotic individuals are likely to *intend* using their privacy settings, but may not actually do so. This, in turn, suggests that these individuals are more likely to provide socially desirable responses when completing privacy-related surveys.

This finding calls the existence of the privacy paradox into question, confirming Solove's (2021) reservations. Consider that the paradox manifests when people's stated intentions do not match the privacy-preserving actions they engage in. As such, neurotics might well give socially desirable responses, saying that they intend to take privacy protective actions (i.e. misrepresenting their intentions).

## Practical and research implications

Based on the results, it might be advisable for privacy researchers to include questions that evaluate respondents' personality traits. This is likely to complicate the analysis process and lengthen the surveys. There are, however, established short form BFI scales that have proven to be reliable in similar research. This is likely to be an acceptable trade-off, given that it will enable privacy researchers to improve the trustworthiness of survey responses. For example, some respondents' responses (e.g. those high in neuroticism) cannot be relied on to be accurate. Having said

this, the results of this study do not indicate the threshold, within the neuroticism subscale, at which the relationship between neuroticism and social desirability will significantly impair the veracity of responses. Determining this threshold would be an interesting topic of future research. Being able to pin down this threshold would enable a more granular approach when eliminating untrustworthy responses.

In this article the authors have highlighted a particular confound that makes stated privacy-related intentions less reliable indicators of actual future privacy-related behaviours. It seems that, in order to truly understand privacy behaviours and related decision-making, all data from self-reported instruments should not be expected to be truthful. It is possible that excluding responses from highly neurotic respondents would improve data quality. A better option would be to find ways to observe actual future privacy-related behaviours, especially where an intervention is being evaluated, which encourages people to engage with privacy-related settings. Unless unreliable responses are removed it cannot be concluded, with any degree of confidence, that the data, which includes self-reported intentions, is indeed a reliable measure of privacy decision-making.

## Limitations and future research

This study is subject to several limitations – all of which point to interesting areas for future research. For example, a large cross-sectional survey was used, which does not provide much latitude to generalise about other similar contexts. This ties in with the second limitation because participants from only the United States of America were considered for this study. This likely presents only one specific view of privacy setting use: especially how it affects the data collected from apps and websites that are integrated with Facebook. For example, many websites and apps enable individuals to use their Facebook credentials to authenticate using the *Facebook Login* developer feature.

## Conclusion

In this article, the extent to which the Big Five personality traits influence the provision of socially desirable responses within the context of self-reported privacy-related intentions, specifically, the intention to engage with Facebook privacy settings was investigated. It is clear from the results that socially desirable responding may indeed have influenced other studies. Our results can help to improve the reliability of self-reported surveys that evaluate personality traits as part of privacy-related studies.

## Acknowledgements

This article is partially based on the primary author's thesis of the degree of Doctor of Philosophy in Information Systems at Rhodes University, South Africa, with supervisor Prof. S. Flowerday, received 2020, available in the following website: <http://hdl.handle.net/10962/145534>.

## Competing interests

The authors have declared that no competing interest exists.

## Author's contributions

K.V.S. wrote the the first draft of the article. K.V.S also collected, read and statistically analysed the primary data. S.F. also wrote (and edited) sections of the article and provided conceptual input. Following this, K.R. further edited and refined the resultant article.

## Ethical considerations

The overarching study related to this article, received full ethical clearance from the Rhodes University Central Ethics Committee (Ref. number: CIS18-10).

## Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

## Data availability

The research used anonymised survey data that is not publicly available.

## Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

## References

- Af Wählberg, A.E. & Dorn, L., 2015, 'How reliable are self-report measures of mileage, violations and crashes?', *Safety Science* 76, 67–73. <https://doi.org/10.1016/j.ssci.2015.02.020>
- Bansal, G., Zahedi, F.M. & Gefen, D., 2016, 'Do context and personality matter? Trust and privacy concerns in disclosing private information online', *Information & Management* 53(1), 1–21. <https://doi.org/10.1016/j.im.2015.08.001>
- Brown, A.J., 2020, "'Should I Stay or Should I Leave?': Exploring (dis)continued Facebook use after the Cambridge Analytica scandal', *Social Media Society* 6(1), 1–8. <https://doi.org/10.1177/2056305120913884>
- Costa, Jr, P.T. & McCrae, R.R., 1992, 'Four ways five factors are basic', *Personality and Individual Differences* 13(6), 653–665. [https://doi.org/10.1016/0191-8869\(92\)90236-I](https://doi.org/10.1016/0191-8869(92)90236-I)
- Crant, J.M., 1995, 'The proactive personality scale and objective job performance among real estate agents', *Journal of Applied Psychology* 80(4), 532–537. <https://doi.org/10.1037/0021-9010.80.4.532>
- Crant, J.M. & Bateman, T.S., 2000, 'Charismatic leadership viewed from above: The impact of proactive personality', *Journal of Organizational Behavior* 21(1), 63–75. [https://doi.org/10.1002/\(SICI\)1099-1379\(200002\)21:1<63::AID-JOB8>3.0.CO;2-J](https://doi.org/10.1002/(SICI)1099-1379(200002)21:1<63::AID-JOB8>3.0.CO;2-J)
- De Vries, R.E., Zettler, I. & Hilbig, B.E., 2014, 'Rethinking trait conceptions of social desirability scales: Impression management as an expression of honesty-humility', *Assessment* 21(3), 286–299. <https://doi.org/10.1177/1073191113504619>
- Dienlin, T. & Trepte, S., 2015, 'Is the privacy paradox a relic of the past? An in-depth analysis of privacy attitudes and privacy behaviors', *European Journal of Social Psychology* 45(3), 285–297. <https://doi.org/10.1002/ejsp.2049>
- Egelman, S. & Peer, E., 2015, 'Predicting privacy and security attitudes', *ACM SIGCAS Computers and Society* 45(1), 22–28. <https://doi.org/10.1145/2738210.2738215>
- Flynn, F.J., 2005, 'Having an open mind: The impact of openness to experience on interracial attitudes and impression formation', *Journal of Personality and Social Psychology* 88(5), 816–826. <https://doi.org/10.1037/0022-3514.88.5.816>
- Gerber, N., Gerber, P. & Hernando, M., 2017, 'Sharing the "Real Me" – How usage motivation and personality relate to privacy protection behavior on Facebook', *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 10292 LNCS, pp. 640–655. [https://doi.org/10.1007/978-3-319-58460-7\\_44](https://doi.org/10.1007/978-3-319-58460-7_44)
- Hair, J., Hult, T., Ringle, C. & Sarstedt, M., 2017, *A primer on partial least squares structural equation modeling (PLS-SEM)*, 2nd edn., Sage, Los Angeles, CA.

- Hao, Q., Yang, W. & Shi, Y., 2019, 'Characterizing the relationship between conscientiousness and knowledge sharing behavior in virtual teams: An interactionist approach', *Computers in Human Behavior* 91, 42–51. <https://doi.org/10.1016/j.chb.2018.09.035>
- Heaven, P.C.L. & Shochet, I.M., 1995, 'Dimensions of neuroticism: Relationships with gender and personality traits', *Personality and Individual Differences* 18(1), 33–37. [https://doi.org/10.1016/0191-8869\(94\)00130-K](https://doi.org/10.1016/0191-8869(94)00130-K)
- Househ, M., 2011, 'Sharing sensitive personal health information through Facebook: The unintended consequences', *Studies in Health Technology and Informatics* 169, 616–620.
- Jackson, C.J. & Francis, L.J., 1998, 'Interpreting the correlation between neuroticism and lie scale scores', *Personality and Individual Differences* 26(1), 59–63. [https://doi.org/10.1016/S0191-8869\(98\)00142-1](https://doi.org/10.1016/S0191-8869(98)00142-1)
- John, O. & Srivastava, S., 1999, 'The Big Five trait taxonomy: History, measurement, and theoretical perspectives', in L. Pervin & O. John (eds.), *Handbook of personality: Theory and research*, 2nd edn., pp. 102–138, Guilford, New York, NY.
- Junglas, I. & Spitzmuller, C., 2006, 'Personality traits and privacy perceptions: An empirical study in the context of location-based services', in *2006 International Conference on Mobile Business*, p. 36, Copenhagen, Denmark.
- Karim, N.S.A., Zamzuri, N.H.A. & Nor, Y.M., 2009, 'Exploring the relationship between internet ethics in university students and the Big Five model of personality', *Computers & Education* 53(1), 86–93. <https://doi.org/10.1016/j.compedu.2009.01.001>
- Milne, G.R., Rohm, A.J. & Bahl, S., 2004, 'Consumers' protection of online privacy and identity', *Journal of Consumer Affairs* 38(2), 217–232. <https://doi.org/10.1111/j.1745-6606.2004.tb00865.x>
- McCormac, A., Zwaans, T., Parsons, K., Calic, D., Butavicius, M. & Pattinson, M., 2017, 'Individual differences and information security awareness', *Computers in Human Behavior* 69, 151–156. <https://doi.org/10.1016/j.chb.2016.11.065>
- McCrae, R.R. & Costa, P.T., 1983, 'Social desirability scales: More substance than style', *Journal of Consulting and Clinical Psychology* 51(6), 882–888. <https://doi.org/10.1037/0022-006X.51.6.882>
- Ones, D. & Viswesvaran, A., 1996, 'Role of social desirability in personality testing for personnel selection: The red herring', *Journal of Applied Psychology* 81(6), 660–679. <https://doi.org/10.1037/0021-9010.81.6.660>
- Osatuyi, B., 2015, 'Personality traits and information privacy concern on social media platforms', *Journal of Computer Information Systems* 55(4), 11–19. <https://doi.org/10.1080/08874417.2015.11645782>
- Parsons, K., Calic, D., Pattinson, M., Butavicius, M., McCormac, A. & Zwaans, T., 2017, 'The human aspects of information security questionnaire (HAIS-Q): Two further validation studies', *Computers & Security* 66, 40–51. <https://doi.org/10.1016/j.cose.2017.01.004>
- Pentina, I., Zhang, L., Bata, H. & Chen, Y., 2016, 'Exploring privacy paradox in information-sensitive mobile app adoption: A cross-cultural comparison', *Computers in Human Behavior* 65, 409–419. <https://doi.org/10.1016/j.chb.2016.09.005>
- Ray, J.J., 1984, 'The reliability of short social desirability scales', *The Journal of Social Psychology* 123(1), 133–134. <https://doi.org/10.1080/00224545.1984.9924522>
- Ringle, C., Wende, S. & Becker, J., 2015, *SmartPLS 3. Boenningstedt: SmartPLS*, viewed 18 February 2022, from <https://www.smartpls.com>.
- Van der Schyff, K. & Flowerday, S., 2021, 'Mediating effects of information security awareness', *Computers & Security* 106, 1–12. <https://doi.org/10.1016/j.cose.2021.102313>
- Van der Schyff, K., Flowerday, S. & Lowry, P.B., 2020, 'Information privacy behavior in the use of Facebook apps: A personality-based vulnerability assessment', *Heliyon* 6, 1–13. <https://doi.org/10.1016/j.heliyon.2020.e04714>
- Shappie, A.T., Dawson, C.A. & Debb, S.M., 2019, 'Personality as a predictor of cybersecurity behavior', *Psychology of Popular Media Culture* 9(4), 475–480. <https://doi.org/10.1037/ppm0000247>
- Solove, D.J., 2021, 'The myth of the privacy paradox', *George Washington Law Review* 89(1), 1–51.
- Stavrova, O. & Kokkoris, M.D., 2019, 'Struggling to be liked: The prospective effect of trait self-control on social desirability and the moderating role of agreeableness', *International Journal of Psychology* 54(2), 232–236. <https://doi.org/10.1002/ijop.12444>
- Stober, J., 2001, 'The social desirability scale-17 (SDS-17): Convergent validity, discriminant validity, and relationship with age', *European Journal of Psychological Assessment* 17(3), 1–21. <https://doi.org/10.1027//1015-5759.17.3.222>
- Stöber, J., Dette, D.E. & Musch, J., 2010, 'Comparing continuous and dichotomous scoring of the balanced inventory of desirable responding', *Journal of Personality Assessment* 78(2), 370–389. [https://doi.org/10.1207/S15327752JPA7802\\_10](https://doi.org/10.1207/S15327752JPA7802_10)
- Stone, M., 1974, 'Cross-validated choice and assessment of statistical predictions', *Journal of the Royal Statistical Society: Series B (Methodological)* 36(2), 111–133. <https://doi.org/10.1111/j.2517-6161.1974.tb00994.x>
- Taneja, A., Vitrano, J. & Gengo, N.J., 2014, 'Rationality-based beliefs affecting individual's attitude and intention to use privacy controls on Facebook: An empirical investigation', *Computers in Human Behavior* 38, 159–173. <https://doi.org/10.1016/j.chb.2014.05.027>
- Tang, J., Akram, U. & Shi, W., 2020, 'Why people need privacy? The role of privacy fatigue in app users' intention to disclose privacy: Based on personality traits', *Journal of Enterprise Information Management* 34(4), 1097–1120. <https://doi.org/10.1108/JEIM-03-2020-0088>
- Tarasow, T., Aristodemou, E., Shitta, G., Laouris, Y. & Arsoy, A., 2010, 'Disclosure of personal and contact information by young people in social networking sites: An analysis using Facebook profiles as an example', *International Journal of Media & Cultural Politics* 6(1), 81–101. <https://doi.org/10.1386/macp.6.1.81/1>
- Thomsen, D.K., Mehlsen, M.Y., Viidik, A., Sommerlund, B. & Zachariae, R., 2005, 'Age and gender differences in negative affect – Is there a role for emotion regulation?', *Personality and Individual Differences* 38(8), 1935–1946. <https://doi.org/10.1016/j.paid.2004.12.001>
- Uziel, L., 2010, 'Rethinking social desirability scales: From impression management to interpersonally oriented self-control', *Perspectives on Psychological Science: A Journal of the Association for Psychological Science* 5(3), 243–262. <https://doi.org/10.1177/1745691610369465>
- Vishwanath, A., Xu, W. & Ngoh, Z., 2018, 'How people protect their privacy on Facebook: A cost-benefit view', *Journal of the Association for Information Science and Technology* 69(5), 700–709. <https://doi.org/10.1002/asi.23894>
- Zhang, C. & Conrad, F., 2014, 'Speeding in web surveys: The tendency to answer very fast and its association with straightlining', *Survey Research Methods* 8(2), 127–135.

Appendix 1 starts on the next page →

## Appendix 1

**TABLE 1-A1:** Descriptive statistics of questionnaire items ( $r$  = reverse coded).

Latent variable	AVE	CA	CR	Item	M	SD	VIF	$t$ -value	Loading
Social desirability (SD)	0.500	0.658	0.795	Are you always courteous, even to people who are disagreeable?	2.351	0.859	1.573	34.306***	0.795
				Are you always a good listener, no matter whom you are talking to?	2.242	0.850	1.512	23.393***	0.733
				Are you quick to admit making a mistake?			(Dropped)		
				Have there been occasions when you took advantage of someone?			(Dropped)		
				Do you sometimes try to get even rather than forgive and forget?	2.203	0.929	1.199	19.332***	0.673
				Do you sometimes feel resentful when you do not get your own way?	1.635	0.879	1.162	13.384***	0.608
				Are you always willing to admit when you make a mistake?			(Dropped)		
				Have you sometimes taken unfair advantage of another person?			(Dropped)		
Intention to use privacy settings (IUPS)	0.629	0.802	0.870	Using the privacy settings on my Facebook account is unnecessary (r)	1.677	0.903	1.616	20.062***	0.790
				Using the privacy settings on my Facebook account is important	1.498	0.761	2.266	29.736***	0.829
				Using the privacy settings on my Facebook account is good	1.483	0.702	2.172	46.108***	0.863
				I must periodically review the privacy settings on my Facebook account	1.920	0.992	1.282	14.405***	0.685
Openness (OPEN)	0.617	0.846	0.889	I see myself as someone who is original, comes up with new ideas	2.115	1.074	2.257	30.061***	0.831
				I see myself as someone who is curious about many different things			(Dropped)		
				I see myself as someone who is ingenious, a deep thinker	2.179	1.092	1.760	30.003***	0.800
				I see myself as someone who has an active imagination	1.943	1.043	1.491	14.385***	0.697
				I see myself as someone who is inventive	2.288	1.123	1.930	19.079**	0.782
				I see myself as someone who values artistic, aesthetic experiences			(Dropped)		
				I see myself as someone who prefers work that is routine			(Dropped)		
				I see myself as someone who likes to reflect, play with ideas	2.023	1.041	1.848	30.871***	0.821
Conscientiousness (CON)	0.522	0.887	0.907	I see myself as someone who does a thorough job	1.497	0.771	1.837	24.674***	0.744
				I see myself as someone who can be somewhat careless (r)	3.649	1.241	1.910	21.690***	0.700
				I see myself as someone who is a reliable worker	1.470	0.770	1.808	27.304***	0.744
				I see myself as someone who tends to be disorganised (r)	2.194	1.249	2.192	21.619***	0.710
				I see myself as someone who tends to be lazy (r)	2.170	1.213	1.796	18.518***	0.693
				I see myself as someone who perseveres until the task is finished	1.740	0.934	2.060	32.690***	0.782
				I see myself as someone who does things efficiently	1.670	0.837	1.894	26.180***	0.755
				I see myself as someone who makes plans and follows through with them	1.731	0.906	1.788	24.319***	0.737
				I see myself as someone who is easily distracted (r)	2.399	1.276	1.617	15.731***	0.628
				Extraversion (EXT)	0.505	0.875	0.867	I see myself as someone who is talkative	2.911
I see myself as someone who is reserved (r)			(Dropped)						
I see myself as someone who is full of energy	2.585	1.236	1.8661					20.704***	0.824
I see myself as someone who generates a lot of enthusiasm	2.637	1.259	2.1050					23.356***	0.884
I see myself as someone who tends to be quiet (r)	3.542	1.330	2.3441					4.776***	0.565
I see myself as someone who has an assertive personality	2.903	1.345	1.4898					5.700***	0.546
I see myself as someone who is sometimes shy, inhibited (r)	3.323	1.387	2.0783					6.828***	0.651
I see myself as someone who is outgoing, sociable	2.908	1.381	2.4051					20.704***	0.786

Appendix 1 continues on the next page →

**TABLE 1-A1 (Continues...):** Descriptive statistics of questionnaire items (*r* = reverse coded).

Latent variable	AVE	CA	CR	Item	M	SD	VIF	<i>t</i> -value	Loading
Agreeableness (AGR)	0.511	0.808	0.862	I see myself as someone who tends to find fault with others ( <i>r</i> )	2.497	1.226	1.572	21.813***	0.679
				I see myself as someone who is helpful and unselfish with others	1.880	0.892	1.635	23.770***	0.690
				I see myself as someone who starts quarrels with others ( <i>r</i> )				(Dropped)	
				I see myself as someone who has a forgiving nature	2.141	1.224	1.387	20.192***	0.674
				I see myself as someone who is generally trusting				(Dropped)	
				I see myself as someone who can be cold and aloof ( <i>r</i> )	2.503	1.275	1.660	27.503***	0.714
				I see myself as someone who is considerate and kind to almost everyone	1.785	0.929	1.954	37.553***	0.777
				I see myself as someone who is sometimes rude to others ( <i>r</i> )	2.068	1.121	1.869	34.941***	0.751
			I see myself as someone who likes to cooperate with others				(Dropped)		
Neuroticism (NEU)	0.625	0.914	0.930	I see myself as someone who is depressed, blue	3.736	1.355	1.8110	27.817***	0.721
				I see myself as someone who is relaxed, handles stress well ( <i>r</i> )	3.674	1.271	3.1572	63.082***	0.861
				I see myself as someone who can be tense	3.069	1.301	1.9482	39.222***	0.778
				I see myself as someone who worries a lot	2.984	1.423	2.5225	41.357***	0.799
				I see myself as someone who is emotionally stable, not easily upset ( <i>r</i> )	3.760	1.245	2.8257	47.327***	0.839
				I see myself as someone who can be moody	3.224	1.371	1.9047	38.269***	0.772
				I see myself as someone who remains calm in tense situations ( <i>r</i> )	3.844	1.147	2.2273	28.682***	0.745
				I see myself as someone who gets nervous easily	3.186	1.426	2.6014	39.737***	0.806

AVE, average variance extracted; CA, Cronbach's alpha; CR, composite reliability; M, mean; SD, standard deviation; VIF, variance inflation factor.

\*\*\*, significant at  $p < 0.01$ .