

Participant recruitment and data collection through Facebook: the role of personality factors¹

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As participant recruitment and data collection over the Internet have become more common, numerous observers have expressed concern regarding the validity of research conducted in this fashion. One growing method of conducting research over the Internet involves recruiting participants and administering questionnaires over Facebook, the world's largest social networking service. If Facebook is to be considered a viable platform for social research, it is necessary to demonstrate that Facebook users are sufficiently heterogeneous and that research conducted through Facebook is likely to produce results that can be generalized to a larger population. The present study examines these questions by comparing demographic and personality data collected over Facebook with data collected through a standalone website, and data collected from college undergraduates at two universities. Results indicate that statistically significant differences exist between Facebook data and the comparison data-sets, but since 80% of analyses exhibited partial $\eta^2 < .05$, such differences are small or practically nonsignificant in magnitude. We conclude that Facebook is a viable research platform, and that recruiting Facebook users for research purposes is a promising avenue that offers numerous advantages over traditional samples.

Keywords: Facebook; social media; personality; recruitment techniques

Introduction

Over the past two decades, the ubiquity of Internet access has led social researchers to develop new, innovative methods of online participant recruitment and data collection. While there was initial concern that these methods could yield biased results, comparative studies (e.g. Gosling, Vazire, Srivastava, & John, 2004) have revealed that data collected over the Internet are, in many respects, no less valid than data collected from more traditional groups (e.g. college undergraduates). In fact, the Internet can be a fertile ground for scholars (Gill & Elder, 2012). Today, this debate is being repeated with respect to research conducted over Facebook, the world's most popular social network service (SNS). The widespread adoption of Facebook combined with the ease of data collection over the Internet makes Facebook an appealing platform for social research. As a result, social scientists have sought to utilize it for participant

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¹The underlying research materials for this article can be accessed at <http://www.seanrife.com/research>

recruitment and data collection (Phillips, 2011; Wilson, Gosling, & Graham, 2012a). As of April, 2012, there were 475 published Facebook-related articles in the social sciences (Wilson, Gosling, & Graham, 2012b). However, conducting research using Facebook presents a number of challenges, one of which is determining the degree to which results obtained through Facebook research can be generalized to the larger population. The present study examines this question by comparing demographic and personality data collected over Facebook (extracted from profile data and obtained through surveys) with data collected through a standalone website and obtained through a more traditional undergraduate sample.

Concerns over Facebook research

Numerous studies (e.g. Denscombe, 2006; Joubert & Kriek, 2009; Ritter, Lorig, Laurent, & Matthews, 2004; Robie & Brown, 2007) have indicated that the administration of questionnaires in an electronic format such as a web page produces results which are as good – if not superior, in terms of internal reliability, completion rates, and participant interest – as those obtained through a traditional paper-and-pencil format. Although Internet access is more heavily concentrated among middle- and upper-class individuals (Henrich, Heine, & Norenzayan, 2010; Jansen, 2010) and the young (Jones & Fox, 2009), this issue is hardly unique to research conducted over the Internet, and nonrepresentative samples are a consistent feature of social research. Today, trends within the field of social psychology indicate that Internet studies have become widely accepted: at the time of this writing, the Social Psychology Network lists over 200 psychology studies which are available to the general public and can be completed over the Internet – suggesting that many researchers have come to accept Internet recruitment (Plous, 2011).

Although research over the Internet is becoming an accepted practice, the use of Facebook in particular presents unique opportunities as well as challenges. Facebook has three major advantages which recommend it as a place for social science research: its massive international user base presents a large pool of potential participants, the explicitly social nature of Facebook encourages users to share content which can aid ‘viral’ participant recruitment, and researchers can import users’ profile data containing demographic, interests and social network data. In 2007, Facebook opened its platform to third party developers, including researchers (Facebook, 2007), and today, with minimal effort, researchers can create applications that administer questionnaires or experiments to Facebook users. As more and more social interaction takes place over Facebook (i.e. people regularly use Facebook messaging and public postings for communication and personal expression), it becomes increasingly easy for researchers to collect detailed data, and closely examine social and personal behavior in this medium. Moreover, issues related to the inherent anonymity of the Internet are of less concern when research is conducted through Facebook, since participation can be tied to specific Facebook user accounts.

Numerous studies (Brickman Bhutta, 2012; Burnap, Avis, & Rana, 2013; Casler, Bickel, & Hackett, 2013; Ramo & Prochaska, 2012; Smith, 2012) have examined the possibility of using social media for participant recruitment and questionnaire administration. While some key differences exist between SNS samples and more representative samples (e.g. those obtained through random digit dialing), there appear to be very few problems with the use of Facebook for research. Additionally, a wide variety of studies have already been conducted using Facebook as a platform

for both recruitment and administration. For example, Goel, Mason, and Watts (2010) have studied attitude similarity among Facebook network members, and Kramer (2010) has used textual analysis of Facebook postings to examine variations in mood between countries. With respect to experimental research, Stillwell and Tunney (2012) have studied different measurement methods of delay measurement discounting using Facebook as an administration platform, Kohli et al. (2012) have used Facebook to study strategic interactions between social network members, and Bond et al. (2012) used Facebook to conduct what is possibly the largest experimental study of political mobilization to date. Social scientists are already leveraging Facebook as a means of conducting research. However, questions remain about how Facebook users may differ psychologically from more traditional samples.

The relevance of personality factors

One area where such differences may be present is personality. At present, the dominant conceptualization of personality is the Five Factor model (Costa & McCrae, 1992), which has enjoyed broad empirical support. The Five Factor model divides personality into five different domains: (1) Openness to Experience, which represents an individual's appreciation for novel experiences, (2) Conscientiousness, which represents a person's self-discipline and organization, (3) Extraversion, which represents a person's tendency to seek the company of others, (4) Agreeableness, which represents an individual's tendency to be friendly and compassionate, and (5) Neuroticism, which represents a person's emotional sensitivity and tendency to experience negative emotions. Conceptually, it seems possible that the explicitly social nature of Facebook (compared to other types of Internet use, such as shopping or seeking out information) would attract users with higher scores on certain personality factors. For example, individuals who are more extraverted, agreeable, and open to new experiences may be more likely to use the Internet to seek out interaction with others on Facebook because doing so meets their needs for friendly, novel, social interactions. Those who score lower on these traits may be more likely to use the Internet for asocial purposes. People who are more conscientious may be more likely to view spending time on social network websites as frivolous (consistent with the popular view of social media as a waste of time), and therefore avoid them, while individuals who are more neurotic may spend more time using the Internet to seek social support through social networking services, in an effort to stabilize their emotions.

It is also possible that the social context of Facebook will affect responses to personality evaluations. That is, items which have negative connotations may be less frequently endorsed when data are being collected over Facebook, as participants would be reluctant to reveal facts about themselves that others might perceive as negative, or because they are more aware of the virtual 'presence' of others while using Facebook. For example, participants in Facebook research may provide lower scores for Neuroticism, and higher scores for Openness to Experience, Conscientiousness, Agreeableness, and Extraversion. Previous research has shown that this type of social desirability concern can have a significant effect on personality data: for example, Furnham (1997) has shown that participants who wish to do so can provide inaccurate responses to Five Factor personality inventories in an effort to portray themselves in a more positive light. Such bias is often difficult to detect, particularly with respect to Agreeableness, Conscientiousness, and Neuroticism.

A number of studies have examined the role personality differences may play in how individuals use the Internet (Amichai-Hamburger, Lamdan, Madiel, & Hayat, 2008; Amichai-Hamburger, Wainapel, & Fox, 2002; Kosinski, Stillwell, Kohli, Bachrach, & Graepel, 2012; Tosun & Lajunen, 2010) and Facebook in particular (Amichai-Hamburger & Vinitzky, 2010; Bachrach, Kosinski, Graepel, Kohli, & Stillwell, 2012; Ross, Orr, Sisic, Arseneault, Simmering, & Orr, 2009). These studies have addressed the possibility that personality factors affect the amount of time people spend using Facebook and how the site is used, but results are mixed: for example, Ross et al. (2009) found a limited relationship between personality factors and various indicators of Facebook use (e.g. use of specific Facebook features, the size of a person's social network). However, Amichai-Hamburger and Vinitzky (2010) used somewhat different methodology, and linked all five personality factors to different types of Facebook use. Carpenter (2012) has shown that narcissism in particular is related to how Facebook users present themselves. Finally, Quercia, Lambiotte, Kosinski, Stillwell, and Crowcroft (2012) have shown that the personality factors which seem to be associated with large real-life social networks are also associated with large Facebook networks, suggesting that the personality factors which influence offline relationships also influence online relationships (representations of offline relationships).

Although these studies provide insight into the relationship between types of Facebook use and personality, no study to date has examined the more basic question of whether or not personality affects whether a person uses Facebook at all, how likely a person may be to fill out a survey over Facebook, or whether or not people provide biased responses when filling out a survey on Facebook, particularly if the results are made public. Given the importance of personality factors for psychological research, answering these questions will be important if Facebook is to be viewed as a viable research platform.

Differences in personality are associated with a wide range of psychological phenomena, such as work and family conflict (Bruck & Allen, 2003), subjective well-being (Gutierrez, Jimenez, Hernandez, & Puente, 2005), academic outcomes (Noftle & Robins, 2007), self-esteem (Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001), personal values (Roccas, Sagiv, Schwartz, & Knafo, 2002), and leadership (Judge, Bono, Ilies, & Gerhardt, 2002). As a result, personality differences are of interest to researchers in a variety of areas, making them an ideal topic for the present paper. If Facebook users differ from other Internet users on established personality factors, it seems quite possible that they will differ on other variables as well. Moreover, if personality data collected over Facebook are biased due to the reasons discussed above, erroneous inferences may be drawn with respect to related variables. Therefore, establishing the degree to which the personality traits of Facebook users match those collected through other means (such as Internet surveys or undergraduate participant pools) is key to ensuring that data collected using Facebook are at least somewhat externally valid.

The present study

In order to determine how research conducted over Facebook compares to that conducted in other formats, the present paper will use data from two separate studies to compare Five Factor personality data collected through Facebook with personality data collected through a standalone website and from college undergraduate

participant pools. Given the rationale and existing research discussed previously, we anticipate that Facebook's overtly social nature will result in the Facebook sample exhibiting higher levels of the socially desirable personality factors associated with larger social networks and sociability – specifically, Agreeableness and Extraversion. We also anticipate that Openness to Experience will be higher in the Facebook sample, as Facebook use is a relatively novel experience which is likely to attract individuals who enjoy trying new things. We do not have any specific predictions with respect to Conscientiousness or Neuroticism— while the social nature of Facebook may result in higher Conscientiousness ratings due to social desirability biases, it is also possible that Facebook users will exhibit lower levels of Conscientiousness as a group, as Facebook use can easily be seen as a frivolous expenditure of time (Ross et al., 2009). Additionally, while more neurotic individuals may spend more time seeking social interaction over the Internet, concerns over impression management may result in Facebook users reporting lower levels of Neuroticism than they would report in a less-social context.

Since the focus of the present paper is on implications for future research, we emphasize that both statistical significance and effect size should be evaluated. While statistical significance indicates whether or not a finding is due to chance, effect size shows the degree to which one variable is affected by another. Merely significant differences in personality between Facebook users and nonusers (for example) might be interesting in their own right. However, such differences are not necessarily relevant to future research unless they are significant in magnitude and could therefore substantially moderate relationships between personality and other variables. As such, we report and discuss both significance and effect size in detail.

Study 1

Two existing data-sets were used for Study 1. All Facebook data were drawn from the myPersonality project (Kosinski, Stillwell, & Graepel, 2013), a Facebook application that allows users to determine their scores on a wide variety of psychometrically valid scales and share them with their friends, in exchange for providing their data to researchers. At present, over six million Facebook users have completed one or more myPersonality questionnaires. In addition to collecting data through questionnaires, the myPersonality project retrieves data from participants' Facebook profiles, which allows for the unobtrusive collection of demographic data, such as participant age and sex. Participants in the myPersonality project can complete personality questionnaires for introspective purposes and share the results with their friends. This method of data collection provides the maximum possible amount of data to researchers while imposing relatively low-participant burden.

The myPersonality data described above were compared with those collected through a standalone website ($N = 20,992$; for details, see Johnson, 2005). The large sample sizes in the present paper beg the question of the importance of small (in terms of effect size, partial η^2) but statistically significant differences. Throughout the present paper, we use the terminology suggested by Ferguson (2009). 'Practically non-significant' means that the difference has no practical value, and refers to effect sizes below .04. 'Small effect size' refers to effect sizes below .25. The surveys were identical with respect to content, and quite similar in terms of presentation format. Additionally, neither survey actively recruited participants – rather, participants discovered them through word of mouth, a search engine, or in the case

of the Facebook survey, the Facebook application listing. The primary difference between the two data-sets (aside from the fact that one contained data collected through Facebook, the other through a standalone website) was that participants in the myPersonality study were required to pay \$4 to participate. Although the present paper considers both how participants were recruited and how questions were administered (e.g. through a Facebook application or a standalone website), in the interest of brevity, we will subsequently refer to these samples as the ‘Facebook’ sample and the ‘standalone website’ sample.

Method

Sample and instruments

Personality domains in Study 1 were measured with a 300 item NEO proxy from the International Personality Item Pool (IPIP). The IPIP-NEO is a public domain measure of the Five Factor personality model, and has been validated as a measure of all five personality constructs that is freely available to researchers (Johnson, 2005). Since both data-sets were extremely large, analyses were limited to personality domains calculated from the 300-item version of the IPIP-NEO only. We also excluded cases that did not provide sex and age data, so that these variables could be included in analyses as control variables (final Facebook sample $N = 3058$; final standalone website $N = 20,992$). In order to overcome the high discrepancy in sample sizes, a random sample of 3058 cases from the standalone website sample were selected. In order to verify that the random sample from the web-based study were not aberrant, a second random sample was also analyzed, and it was concluded that the two samples exhibited no substantive differences. All findings discussed below are from this randomly selected subset of the data collected through the standalone website.

Results

Demographic comparisons

Two demographic comparisons were possible given the available data: sex and age. We observed significant differences between the Facebook data and data collected through the standalone website for both variables. Participants in the Facebook sample were slightly older ($M = 26.83$, $SD = 10.17$) compared to the website sample ($M = 26.10$, $SD = 10.64$), $t(2,6101.70) = -2.75$, $p < .01$. However, this difference exhibited an effect size of little practical significance (Cohen’s $d = .07$). Additionally, the Facebook sample was more evenly distributed with respect to sex: the male/female distribution of Facebook users was 51.7 and 48.3%, respectively, whereas the male/female distribution of website users was 36.9 and 63.1%, respectively.

Personality comparisons

Prior to conducting analyses of personality factors, we tested the overall reliability of the personality measures, all of which exhibited good reliability (all $\alpha > .90$). In order to determine whether or not one sample was more reliable than the other, we used a Hakstian and Whalen (1976) M test, which revealed that the website sample was slightly more reliable with respect to Openness to Experience, but the Facebook

Table 1. Five factor reliability comparison (Facebook and website samples 300 question IPIP-NEO personality inventory, Study 1; $N = 13,578$).

Item	Sample alphas		Hakstian–Whalen M
	Facebook	Website	
Openness to Experience	.90	.91	18.51**
Conscientiousness	.94	.94	0.00
Extraversion	.95	.94	55.38**
Agreeableness	.93	.92	29.73**
Neuroticism	.96	.96	0.00

** $p < .01$.

sample was slightly more reliable with respect to Extraversion and Agreeableness (see Table 1). We used a MANCOVA to examine the relationship between the data collection method and each of the five personality factors, controlling for participant sex and age. Results indicated differences between the two samples with respect to four of the five personality factors (the exception being Agreeableness; see Table 2), and that the data source (Facebook or website) accounted for a significant amount of variance in the overall model, Hotelling's $T^2 = .09$, $F(5, 6108) = 107.97$, $p < .01$, $\eta^2 = .08$.

Thus, differences between the Facebook data and data collected through the standalone website were statistically – but not practically – significant. Specifically, Conscientiousness and Extraversion were both significantly lower in the Facebook sample than the website sample, Agreeableness was higher in the Facebook sample, and Neuroticism was lower in the Facebook sample. Additionally, consistent with the tentative prediction that use of a SNS requires at least some degree of willingness to engage in novel activities, Openness to Experience was significantly higher in the Facebook sample than the web sample. While there were numerous significant differences, it should be noted that only the difference in Openness to Experience exhibited a minimally practical effect size (partial $\eta^2 = .04$), and this difference in Openness was small in magnitude (Ferguson, 2009). The large sample size used in Study 1 likely resulted in an unusually large amount of power (Cohen, 1992), leading to the detection of extremely small (partial $\eta^2 < .02$) effect sizes. In order to confirm that the unusually large sample size was responsible for such high levels of

Table 2. Five-factor personality dimensions – study 1, (300 question IPIP-NEO personality inventory; total $N = 6116$).

Item	Facebook		Website		F	Partial η^2
	M	SD	M	SD		
Openness to Experience	3.88	.42	3.72	.44	254.47**	.04
Conscientiousness	3.41	.52	3.51	.52	61.73**	.01
Extraversion	3.25	.57	3.35	.56	34.50**	.01
Agreeableness	3.49	.52	3.52	.47	.55	.00
Neuroticism	2.81	.67	2.90	.65	8.45**	.00

** $p < .01$.

significance and small effect sizes, we performed an additional test using a smaller (i.e. more typical; $N = 100$) subset of the data. Results from this analysis showed that the only significant difference between the Facebook and web samples were for Openness to Experience ($p < .01$).

Study 2

Although the above comparison provides a useful comparison of Facebook data with data from a larger sample of Internet users, a majority of psychology studies are not conducted using this type of broad sample. College undergraduates are by far the most common type of participant in psychology research (Arnett, 2008). It would therefore be helpful to conduct more direct comparisons between Facebook data and data collected from undergraduate populations. With this in mind, we collected personality data from college undergraduates at two mid-large-sized universities, one of which was located in the Southeastern United States, the other in the Midwestern United States. This technique allowed us to create a diverse sample of students to which we could compare the Facebook data. As was the case with Study 1, in the interest of brevity, we refer to this as the ‘undergraduate’ sample.

Method

Sample and instruments

The myPersonality project provides personality data from measures of different lengths. While the personality data in Study 1 were from the 300 item version of the IPIP, we elected to use the 100 item version for Study 2 in an effort to reduce participant burden and test for differences using a more broadly applicable personality test (since it is likely that many researchers will find the 300-item version prohibitively long). Previous research indicates that the short form version of the IPIP is a valid measure of the five-factor constructs, on par with the 300-item version (Johnson, 2011).

After agreeing to participate in the study, university participants were directed to a website where they were instructed to fill out the IPIP-100, as well as answer additional questions regarding Internet and Facebook use. The survey was deliberately designed to resemble the presentation format of the myPersonality questionnaire. A total of 627 individuals completed the survey over a two-month period in exchange for course credit. These data were merged with a random selection of 627 US participants from the myPersonality study. As was the case with Study 1, taking a sub-sample was deemed necessary due to the high discrepancy in group sizes; in order to verify that the random sample from the myPersonality study were not aberrant, a second random sample was also analyzed. The two samples exhibited no substantive differences.

Results

Demographic comparisons

As was the case with Study 1, we conducted two demographic comparisons: sex and age. We observed significant differences between the Facebook and website data for both variables. Participants in the Facebook sample were older ($M = 26.28$, $SD = 9.08$) compared to the undergraduate sample ($M = 20.49$, $SD = 3.81$),

$t(2628.91) = -38.04, p < .001$. Additionally, like the data in Study 1, the Facebook sample in Study 2 was more evenly distributed with respect to sex: the male/female distribution of Facebook users was 40.0 and 60.0%, respectively, whereas the male/female distribution of participants recruited through the undergraduate participant pool was 30.4 and 69.6%, respectively.

Personality comparisons

As was the case with Study 1, we conducted two primary comparisons between the myPersonality data and the undergraduate data: a comparison of the reliability of the personality variables in each sample, and a MANCOVA examining the between-group differences in personality factors, controlling for sex and age. In aggregate, all measures of each personality trait were highly reliable (alphas). Additionally, there were very few differences in reliability between the Facebook and the undergraduate samples (see Table 3). The only significant difference in reliability was found in the measure of Extraversion, with the Facebook sample being slightly more reliable. Differences in each of the five factors are presented in Table 4. Controlling for sex and age, there were statistically significant differences between the Facebook and undergraduate samples in every personality dimension except Extraversion, Hotelling's $T^2 = .15, F(5, 1245) = 37.36, p < .01, \eta^2 = .13$. However, with the exception of Openness to Experience (which exhibited a small effect size; partial $\eta^2 = .11$), these differences were not practically significant (partial $\eta^2 < .02$). Again, in order to confirm that the sample size was responsible for such high levels of significance and small effect sizes, we performed an additional test using a smaller ($N = 100$) subset of the data. Results from this additional analysis showed that the only significant difference between the Facebook and the undergraduate samples were for Openness to Experience ($p < .05$).

Overall, results in Study 2 paralleled those from Study 1: there were statistically significant differences between the Facebook and the undergraduate groups on four out of five personality dimensions. However, for most differences, the effect sizes involved were below the minimum necessary for a finding to be considered practically significant (Ferguson, 2009). When effect size is considered alongside statistical significance, the only practical difference between the two groups is found for Openness to Experience, with the Facebook group exhibiting higher levels of Openness, and even this difference was small in magnitude. Given the context in

Table 3. Five-factor reliability comparison (Facebook and undergraduate samples, 100 question IPIP-NEO personality inventory, Study 2).

Item	Sample alphas		Hakstian–Whalen <i>M</i>
	Facebook	Undergraduate	
Openness to Experience	.85	.84	.62
Conscientiousness	.91	.91	.00
Extraversion	.93	.91	9.36**
Agreeableness	.88	.87	.95
Neuroticism	.92	.91	2.06

** $p < .01$.

Table 4. Five-factor personality dimensions – study 2 (100 question IPIP-NEO personality inventory; total $N = 1252$).

Item	Facebook		Undergraduate		F	Partial η^2
	M	SD	M	SD		
Openness to Experience	3.97	.55	3.55	.53	154.03**	.11
Conscientiousness	3.54	.67	3.61	.60	9.93**	.01
Extraversion	3.49	.81	3.52	.63	.75	.00
Agreeableness	3.59	.60	3.67	.52	7.88**	.01
Neuroticism	2.70	.82	2.66	.67	6.27*	.01

* $p < .05$; ** $p < .01$.

which the Facebook data were collected – i.e. users searching for personality tests or taking the myPersonality test at the suggestion of a friend – this finding makes sense.

Discussion

The central question of the present paper is whether or not Facebook is a viable platform for social research. We addressed this issue by comparing basic demographic and personality data from Facebook with data collected through a standalone website and from undergraduates in university participant pools. While statistically significant differences were detected, these differences were too small in magnitude to be considered practically significant, or exhibited only small effect sizes. Thus, we believe that data collected over Facebook are unlikely to exhibit systematic biases that could confound future scientific studies. As such, the myPersonality Project and endeavors like it represent a promising new method for participant recruitment and data collection.

Differences in personality factors

Perhaps the most interesting of the above findings are the comparatively low level of Extraversion in the Facebook sample – a result inconsistent with our predictions. One potential explanation for this finding is that Conscientiousness and Extraversion are personality domains that are not amenable to online interaction; that is, the social character of Facebook may not be the important factor. Rather, what may be important is the relatively impersonal communication that takes place over an electronic, largely text-based medium (Kiesler, Zubrow, Moses, & Geller, 1985). As such, Conscientiousness and Extraversion may lead to less use of Facebook in favor of in-person interactions. The findings with respect to Extraversion in particular also appear to be inconsistent with Kraut et al.'s (2002) view that those who are more extraverted are more likely to use the Internet for social purposes, compared to their more introverted counterparts. One relevant consideration here is the fact that taking an online personality test is not an inherently social activity. Therefore, it may be that differences in terms of how the Internet is used are simply accentuated in the context of a SNS, where more extraverted individuals are likely spending time interacting with friends as opposed to engaging in more solitary, introspective activities,

such as taking a personality test. Therefore, people who are more extraverted may be more likely to use Facebook, but less likely to participate in a study on Facebook, making their data unavailable.

Participants in the Facebook sample were also slightly less neurotic than those in the undergraduate sample. One potential explanation for this finding is that participants in the Facebook sample provided more socially desirable responses than those in the sample of undergraduates. However, it is also possible those high in Neuroticism have fewer interpersonal relationships, and are therefore unlikely to spend time on a social networking website, and instead prefer to use their time on the Internet for other endeavors. Given the large amount of attention paid to Internet use and psychological well-being (e.g. Morrison & Gore, 2010), the way the Internet is used and how online behavior affects mental health will likely be the subjects of much future research.

Statistical vs. practical significance

Of course, all of the findings with respect to personality differences should be viewed with their small or practically nonexistent effect sizes in mind. It seems quite clear that the large sample used in the present study (particularly Study 1) allowed for an unusually high level of power, making small differences between the Facebook and comparison samples statistically significant (Cohen, 1992). This interpretation regarding the role of sample size was confirmed by randomly selecting a subsample ($N = 100$) of the data from each study and re-running all of the aforementioned MANCOVAs on this smaller data-set. This procedure confirmed that the only significant differences between the Facebook and the nonFacebook samples were with respect to Openness to Experience. As others (e.g. Ziliak & McCloskey, 2006) have pointed out, a large enough sample can easily yield deceptively significant findings, despite the fact that effect sizes (and thus practical impact) are very small. Therefore, while statistically significant, the practical significance of the differences between the two samples with respect to four of the five domains tested is minimal or nonexistent.

The personality factor exhibiting the greatest difference between groups in either study was Openness to Experience, which – consistent with our predictions – was significantly higher in the Facebook sample. In a broad sense, this is likely due to the fact that establishing a presence on Facebook is a novel experience that utilizes a new technology and represents a new way of communicating with one's friends and family. Also consistent with our predictions was the significantly lower Conscientiousness score among participants whose data were collected through the stand-alone website, although again, the effect size was not practically significant (Partial $\eta^2 < .01$). Our interpretation of this finding is that individuals high in Conscientiousness are more likely to view using Facebook as a waste of time, and are therefore less likely to participate in studies conducted over Facebook.

Limitations, conclusion and future directions

One limitation of the present study should be noted: the grouping variable in the analyses described above represents the data-set from which the personality data were derived rather than a separate questionnaire item (e.g. 'Do you use Facebook?'). As such, it is quite possible that there is overlap between the samples.

This fact limits the degree to which the present findings can be said to describe the direct relationship between personality factors and the use of SNSs. Additionally, the present study is unique in its comparison of presentation formats, comparing data collected in the relatively social context of Facebook with data collected through the relatively asocial context of a standalone website or as part of an undergraduate participant pool. Such contextual differences in data collection add a potentially confounding dimension to our work.

The personality differences between Facebook research participants and other Internet participants or college undergraduate participants would be undetectable using smaller sample sizes. Therefore, we believe that Facebook is a viable platform for data collection in the social sciences, and that such data should be regarded as comparable (if not superior, given the demographic characteristics of Facebook users) to data from participants who were recruited through other means. We echo the conclusions of previous researchers (e.g. Best, Krueger, Hubbard, & Smith, 2001) regarding Internet research as a whole, who suggest that while data collected over Facebook may not be representative of an entire society or the global population as a whole, it is at least as diverse as data collected through more common methods, such as undergraduate subject pools. In fact, given that over 90% of college students have Facebook accounts and use the service regularly (see Ellison, Steinfield, & Lampe, 2007; Junco, 2012), we believe that the use of Facebook for research can only add to the overall validity of research in the social sciences. Combined with new, innovated methods of collecting and analyzing existing data (such as those used to examine other types of social media; e.g. Bruns & Stieglitz, 2013; Procter, Farida, & Voss, 2013), Facebook appears to be a promising new space for social scientists.

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David Stillwell, PhD, is the research manager of The Psychometrics Centre at the University of Cambridge. He created the myPersonality Facebook application, which allows users to take real psychometric tests and receive feedback on their results. Today, myPersonality has collected data from more than 6 million people and the resulting database has become a priceless academic resource used by researchers. He is the author of numerous papers and presentations on language, personality, and social media.

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