

Facebook Psychology: Popular Questions Answered by Research

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Since its launch in February 2004, Facebook has become one of the most popular websites in the world, as well as a widely discussed media phenomenon. Unsurprisingly, the Facebook revolution has inspired a wealth of psychological study, which is growing exponentially. In this article, we review the recent empirical research into some of the key psychological themes concerning Facebook use. The review is organized according to common questions about Facebook culture and use being posed by academics and social commentators alike. These questions are grouped under three major themes, namely: (a) antecedents of Facebook use; (b) how individuals and corporations use Facebook; and (c) psychological outcomes or effects of Facebook use. To this end, we review over 100 recent publications (mostly empirical, peer-reviewed journal articles). We conclude by providing some suggestions for future psychological research in this rapidly expanding area of popular media culture.

Keywords: Facebook, social networking, social media, cyber-psychology, computer-mediated communication

The recent explosion in computer-mediated communication has led to a phenomenal upsurge in the availability and use of social networking sites (SNSs; for definition and history see, Boyd & Ellison, 2007). SNSs can be general or specific in nature (e.g., focusing on particular populations or activities), but they all provide a virtual platform where users can “present” themselves, articulate their social networks, and establish or maintain connections with others (Ellison, Steinfield, & Lampe, 2007). One of the most popular SNSs is Facebook. Launched on February 4, 2004 (originally at <http://www.thefacebook.com>) and reliant on a continually developing, custom-built infrastructure, the site reached over 750 million ac-

tive members internationally in late 2011. It is “one of the most-trafficked sites in the world” (Facebook, 2011a) at times, more trafficked even than Google.

Facebook’s popularity has rendered it the focus of considerable debate within the academic world. This has related particularly to the implications of its use on such areas as relationship-formation and satisfaction (e.g., Sheldon, Abad, & Hinsch, 2011); identity construction (e.g., Zhao, Grasmuck, & Martin, 2008; Back et al., 2010); psychological and emotional well-being (e.g., Valkenburg, Peter, & Schouton, 2006; Sigman, 2009; Kalpidou, Costin, & Morris, 2011); personal–professional boundaries (e.g., Devi, 2011; MacDonald, Sohn, & Ellis, 2010); learning (e.g., English & Duncan-Howell, 2008; Kabilan, Ahman, & Abidin, 2010); and privacy (Gross & Acquisti, 2005; Hartzog, 2009). While some of these issues have polarized opinion, the complex nature of Facebook interactions has been recognized (e.g., Kujath, 2010; Sheldon et al., 2011) and needs to be reflected in study of this medium. Indeed, global-level discourse on the role played by such SNSs as Facebook in catalyzing revolutionary social change only supports this

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need (e.g., Morozov, 2011; Channel 4 News, 2011).

Applying learning from the field of differential psychology—the area of psychology concerned with the study of how and why individuals differ, and what consequences these differences have (Chamorro-Premuzic, 2011)—is likely to illuminate Facebook research. Use of SNSs can be seen as illustrative of a more widespread shift to an increasingly isolated, individually driven mode of interaction than has been featured previously in Western society (Sigman, 2009). It is critically important, therefore, that we understand the differential psychological processes affecting behavior and behavioral outcomes within this context. Indeed, while there has been some study of personality factors in relation to Facebook, there remains a relative paucity of literature on this important topic (Wilson, Fornasier, & White, 2010). With hundreds of millions of users, one would expect to see individual differences that explain why and how people use Facebook and what effects that use may have.

After providing a brief overview of the some of the challenges of measuring Facebook research, we synthesize what is known about the predictors of Facebook use, behavior, and outcomes in order to contextualize some of the main debates surrounding this particular SNS. We also discuss the psychological significance of Facebook in terms of how it mediates individuals' relationships with brands and their communications. Finally, we identify priority areas for future study, including making methodological suggestions for future research inquiry.

How Has Facebook Activity Been Measured?

Before presenting our findings in detail, it is worth raising some notable methodological problems emerging from this review. First, while some standardized scales have been developed for research in this area (e.g., 'The Facebook Intensity Scale', Ellison et al., 2007), they are not consistently applied. Related to this, readers should note that the majority of studies reviewed have used scales to measure other dimensions of behavior or psychology that have not been developed or normed specif-

ically for use with SNS populations and/or theory that predates the "digital age."

Second, levels of engagement in SNS activity are described in different ways. "Facebook use" has been measured variously using categorical, interval, or ratio scales with different degrees of sensitivity. Respondents may be asked, for example, to provide details of the average number of minutes they spend online in a typical day, month, or year; or, instead, to identify whether they use the site (or elements of it) "never," "seldom," "sometimes," or "frequently," without clear guidance provided on the frequency of usage that might exemplify each of these categories. In addition, sampling or screening might involve identifying whether potential participants are "regular users" of the site, with no clear definition provided about the level of activity that this would entail.

Not only do these inconsistencies and methodological issues make both interpretation and meta-analysis challenging, but they also pose obvious threats to studying reliability and validity (a problem also confounded by the fact that the majority of the studies use self-report survey data). We do not attempt to resolve these problems in this review but we do encourage readers to interpret findings, taking into account these and other methodological considerations. Methodological recommendations for future research are discussed in the final section of this review.

Antecedents of Facebook Use: Who Uses Facebook?

Is Facebook Just for Young People?

The published literature on social networking suggests that, given rapidly increasing Internet penetration worldwide, there is little difference between the personality profiles of the online and offline populations (Valkenburg & Peter, 2007), and the same is said to be true for SNSs specifically (Buffardi & Campbell, 2008). Facebook is particularly popular with young people (Boyd, 2007), especially those in college or university (perhaps reflective of its roots in the student community). Hargittai's 2008 study found Facebook to be the preferred mode of social networking for many young people. Extrapolating from this finding, it may be that the decline in use of email, hitherto the most pop-

ular mode of electronic communication (Murnan, 2002; Judd & Kennedy, 2010) can be explained by increased reliance on SNSs as an alternative way of forging and utilising interpersonal connections. While users of SNSs such as Facebook come from a wide range of age and ethnic groups (Hargittai, 2008), older people can be less adept at navigating the site (Brandtzæg, Luders, & Skjetne, 2010).

Is Facebook More Popular Among Very Sociable People?

Gangadharbatla (2008) noted that relatively little is known about the antecedents of SNS use, although four prominent predictive factors have been highlighted, namely: "Internet self-efficacy, need for cognition, need to belong, and collective self-esteem" (p. 6). In testing these further, he found support for all factors with the exception of the need for cognition (Cacioppo & Petty, 1982), a personality trait that refers to one's tendency to be curious and have a "hungry mind" (von Stumm, Hell, & Chamorro-Premuzic, 2011). People with a high need for cognition are more likely than their counterparts with a low need for cognition to seek out and relish opportunities to engage in tasks that require cognitive effort (Petty, Briñol, Loersch, & McCaslin, 2009). The fact that the need for cognition did not predict Facebook use perhaps reflects the site's role as a vehicle for passive as well as active information-seeking (Wise, Alhabash, & Park, 2010). Passive information-seeking on Facebook might include, for example, "surveying messages posted to a central location (like a 'Wall' or status-update page, studying user profiles, and lurking in discussion forums without participating)" (Wise et al., 2010, p. 556), though it is difficult to draw robust conclusions about the extent to which this correlates to low need for cognition, given that the need for cognition and SNS use is an underresearched area (Gangadharbatla, 2008). Using a theory of planned behavior model (Ajzen, 1991), Pelling and White (2009) found that attitudes about high SNS use significantly predicted SNS use (even once accounting for demographic factors), and that self-identity increased the predictive validity of the model. They also found self-identity to correlate directly with SNS use, "suggesting that the more [SNS] use is a salient part of a young adult's

identity, the greater the individual's use of these Web sites" (p. 758). Unlike Gangadharbatla (2008), Pelling and White (2009) did not find "belongingness" to be a significant factor in SNS take-up, but it did predict addiction to SNS; this is consistent with Wilson et al.'s (2010) study which found a number of personality and self-esteem variables predicted addictive SNS usage among young people'. Moreover, this is in line with a growing body of evidence relating to Internet addiction in general (Caplan, 2002; Suratt, 2006; Tang & Zhou, 2009) and evidence that use of Facebook and other SNSs can be addictive (Muise, Christofides, & Desmerais, 2009; van Rooij, Schoenmakers, van de Eljnden, & van den Mheen, 2010). Evidence from studies of generic Internet use suggest this may be because of its "ersatz" sociality (Green & Brock, 1998, p. 527), that is, the illusion it creates that the user is engaged in actual social interaction akin to that encountered in "real life" rather than mere virtual interaction.

A recent study of individual difference predictors of Facebook use among young people (Wilson et al., 2010) found that those high in extraversion and those low in conscientiousness (measured using the five factor model of Costa and McCrae, 1992) are more likely to use SNSs. In that same study, Wilson et al. (2010) found no correlation between openness to experience or agreeableness and SNS use, suggesting that such media are no longer seen as a novelty; instead, they may be deemed as "functional" in nature (p. 175), that is, used for work purposes, rather than as a means of socializing. There was also no evident link between SNS use and neuroticism and self-esteem, attributed to concerns held by socially anxious people about being in the public domain. Extrapolating from this evidence, it is unsurprising that we conclude that users of Facebook do not differ in most personality traits from nonusers of Facebook.

Processes and Operant Behavior: How and Why Do People Use Facebook?

What Do Users Get Out of Facebook?

Given its massive popularity and the aforementioned evidence of some associated decline in use of other media among certain groups, Facebook clearly meets a particular need. To

clarify the nature of that need, we have to understand how (and what) people communicate via this medium, and how that differs from communication via traditional media (e.g., email, telephone, face-to-face interaction). Looking briefly at the evolution of the relationship between the individual and mass media in general terms, over time, may be helpful in this respect.

Historically, the most frequently identified “uses and gratifications” (Katz, 1959) in regard to mass media have been diversion, personal relationship, personal identity, and information (McQuail, Blumler, & Brown, 1972); people *actively* engage with media channels for these purposes. More recently, general Internet use has been found to meet both users’ interpersonal needs (Morris & Ogan, 1996) as well as their need to build and maintain relationships in virtual communities (Sheldon, 2008; Song, LaRose, Eastin, & Lin, 2004); that is, maintaining virtual networks has become an end in itself. This may be explained, at least in part, by evidence that suggests users of digital media “respond to computerized devices in the way they do to people” (Williams & Rowlands, 2007, p. 17).

Facebook use has been typologized in a number of ways, with considerable overlap between classifications. Both Raacke and Bonds-Raacke (2008) and Park, Kee, and Valenzuela (2009) gathered data on motivation for Facebook use by asking participants to identify, from a given list of items, which ones described their reasons for using the site (Park et al. used a 1–6 Likert scale to assess the extent to which each item motivated site use). Bonds-Raacke and Raacke (2010) identified three core dimensions of use: information, friendship, and communication. These dimensions are consistent with earlier research, which showed that Facebook users sign-up principally to keep up-to-date with old and new friends, and for such purposes as organizing or publicizing social events, studying, and dating (Raacke & Bonds-Raacke, 2008). Park et al. (2009) typologized use in a similar way, with “socializing, entertainment . . . and information” highlighted as three of the “four primary needs for participating in groups within Facebook” (p. 729), in addition to “self-status seeking.” This typology makes sense when interpreted in light of evidence suggesting that

SNS activity correlates to a user’s sense of identity (Pelling & White, 2009).

Informed by Rubin’s (1994) typology of media use and Ramirez, Walther, Burgoon, and Sunnafrank’s (2002) conceptualization of information-seeking communication behavior, Wise, Alhabash, and Park (2010) suggested that Facebook “serv[es] two primary goals: passive social browsing (i.e., through reading newsfeeds) and extractive social searching (e.g., through reading friends’ profiles)” (p. 560). Passive browsing, they posited, is comparable to Rubin’s “ritualized” use, while extractive searching is aligned with “instrumental” use in that “it deals with acquiring specific information” (Wise et al., 2010, p. 555). Wise et al. coded various elements of the site using Lampe, Ellison, and Steinfeld’s (2006) classification for social searching and social browsing. By tracking and coding participants’ use of the site, they found that a greater proportion of Facebook usage time was spent on passive rather than active engagement but that social searching (i.e., the more active involvement) elicited greater pleasurable responses (determined physiologically by measuring stimulation of the appetitive and aversive system) than did simply browsing through the site.

Why Do Corporations Use Facebook?

Facebook made it possible for companies to join three years after the platform’s inception. Take-up was overwhelming, with 100,000 organizations creating profiles in the first 24 hours alone (as cited in Burns, 2010). In turn, Facebook users have embraced the opportunity to engage with brands in this way, communicating brand loyalty or support by becoming “fans” of particular companies, or by clicking an icon to indicate that they “like” a brand.

There are in excess of three million brand identities (including those from individuals) on Facebook, supported by over 20 million fans (Walsh, 2009). Companies have clearly recognized the importance of social networks for their ongoing marketing activities with more than 2.5 million organizations worldwide now integrating their websites with the Facebook interface (Facebook, 2011b). Accordingly, Facebook is recognized as an important customer relationship management tool for corporations and marketers. Its online platform allows brands

to develop more open and two-way relationships with their customers by facilitating participation, dialogue, and opt-in brand experiences (Treadaway & Smith, 2009). Offering site users (i.e., existing and potential customers) entertaining games, exclusive content, and the opportunity for engaging conversations can contribute to strong customer relationships (Zhang, Sung, & Lee, 2010). This way of connecting with the consumer represents a departure from the traditional broadcast-based advertising model, which focuses more on creating brand and product consideration through raised awareness (Meadows-Klue, 2008).

Users' desire to connect with brands on Facebook has been linked to several factors, including social identity, self-disclosure, brand trust, satisfaction, and attachment and brand consciousness (Burns, 2010). Consumers' motivation to participate with brands can also be driven by the desire for self-gain, rather than loyalty or appreciation. Commercial social media research has shown that users befriend brands not only to communicate their support and preferences to other users, but also to receive incentives for continued brand loyalty (Cone, 2010).

In addition to enabling companies to thrive in the marketplace, Facebook can also help organizations when they are most at risk of losing customers. Evidence suggests that in times of a public relations crisis for corporations, Facebook has become an important management and damage mitigation tool (Wright & Hinson, 2009). An example of this includes Toyota's recall of the Yaris in 2009. In that car recall, Toyota used its Facebook page to send users to a dedicated microsite with reassuring information (Wright & Hinson, 2009). Although many corporations have created official, company-controlled Facebook fan pages, it has been suggested that they are often underexploiting the opportunity for dialogue and communication (McCorkindale, 2010). An analysis of nonprofit companies, for example, revealed that many simply describe their organization without including news or providing opportunities for participation (Waters, Burnett, Lamm, & Lucas, 2009).

The emergence of Facebook represents one part of a more general shift in power away from corporations and toward consumers (as highlighted, for example, by Laffey, 2006), one per-

son's views or described experience can now reach millions of people in a very short period of time and, in turn, strangers are able to rally into communities and online groups with shared agendas. These consumer communities can help brands by harnessing emotional engagement and brand support or endorsement; for example, in the United Kingdom in 2007, Cadbury decided to reintroduce the confectionary brand Wispa, after a popular campaign on Facebook. Of course, the converse is also true; an online "mob" culture can be created quickly and easily to challenge a particular brand's identity, service, or practices.

Companies are realizing the economic benefits of formalizing corporate involvement in Facebook: Facebook can provide consumer insight at a fraction of the cost of traditional methods (Woodcock, Green, & Starkey, 2011) as well as easy integration of contemporary and traditional research methods. The confectionary brand Skittles, for example, has a Facebook group linked to the brand's overall advertising strategy, which has enabled members to give their views via Facebook Polling (a service offered by the site for providing "quick answers to simple questions", Poynter, 2008) as well as by clicking links to externally hosted traditional surveys (Poynter, 2008).

The sheer volume and depth of data that are collected on individuals makes hypertargeting of advertising on the platform effective and efficient. Facebook has shown a commitment to provide brands with alternative ways to engage their consumers within the platform, including geolocation-based deals, an online credits currency, and even TV broadcasts and video-streaming opportunities. As long as Facebook remains one of the most popular tools for social networking, brands are likely to continue to use the service to engage their customers.

Are Facebook Users Really Who They Say They Are?

The first step to engagement in any SNS is for the user to set up a profile and, in doing so, create a "live" virtual persona (Boyd & Ellison, 2007). Identity construction, online or offline, is "a public process" (Zhao et al., 2008, p. 1817; White, 2000; Goffman, 1959). Virtual media settings, however, may initially seem to offer more scope for control or variation of identity

than in the real world; they seem to provide an environment in which identity is malleable and the reality or fantasy boundary can be blurred easily (Turkle, 1995). Facebook, however, is a “nonymous” environment (Zhao et al., 2008). This means that users have *some* control over how they are presented, but not total control, because the activities in which they are involved online, and the people with whom they connect, also provide identity cues—and identity validation or refutation—to other users. In this way, there are implicit as well as explicit identity cues, pertaining to communities of users rather than to the individual in isolation (Zhao et al., 2008). Accordingly, Facebook users are far more likely to present a realistic, if slightly exaggerated, version of their true personalities (supporting “the extended real-life hypothesis”) than to represent an overly idealized virtual identity (Back et al., 2010, p. 372). That is to say, “various dimensions of identity claims appear to be grounded in offline realities” (Grasmuck, Martin, & Zhao, 2009, p. 158).

Facebook users can personalize their profile page—which is divided into a number of sections—in several ways, using externally created “applications” (Boyd & Ellison, 2007), and this activity may have a reinforcing impact on self-awareness; for example, Gonzales and Hancock (2011) found that constructing and reflecting on self-identity through Facebook use would lead to greater objective self-awareness effects (Duvall & Wicklund, 1972) than traditional stimulus for objective self-awareness (such as a mirror). Perhaps unsurprisingly, people with narcissistic personality traits tend to check their profile page more frequently than other users, as well as spend more time on the site in general (Mehdizadeh, 2010). In line, a study found that narcissism effects on Facebook use were mediated by the attractiveness and level of self-promotion evident in the user’s main photo (in conjunction with social interaction online, Buffardi & Campbell, 2008), while another study found that narcissism levels predicted the amount of self-promotional content in a number of core profile areas (Mehdizadeh, 2010).

Privacy and Disclosure on Facebook: Who Tells What to Whom?

Although Facebook users take privacy seriously, information disclosure is manifest very

differently in this virtual environment compared to the offline arena (Christofides, Muise, & Desmarais, 2009). Parks and Floyd (1996) highlighted the view that the mediated nature of Internet communication and (mis)perceived anonymity catalyzes freedom of expression such that people feel far more liberated online than they do in the real world. Specifically, Facebook elicits higher levels of general information-sharing (Brandtzæg et al., 2010) than the “real” (physical) world, as well as greater information disclosures, that is, more communication of personal or sensitive information (Christofides et al., 2009). To some extent, this is even an expectation: “content sharing” has been dubbed one of the “most important criteria for the success of social network sites” (Brandtzæg et al., 2010, p. 1006) and the increased acceptability of the reduced privacy associated with this was recognized explicitly by Facebook’s founder as reflecting a shift in “social norms” (as cited in Johnson, 2010).

Although there is evidence that people are becoming increasingly aware of the potential risks posed by indiscriminate information-sharing online (Bonds-Raacke & Raacke, 2010)—and that women, in particular, are more concerned with Facebook privacy than men (Fogel & Nehmad, 2009; Bonds-Raacke & Raacke, 2010)—users have hitherto been relatively unconcerned (Hew, 2011) or unaware (Brandtzæg et al., 2010) of such issues. An overall increase in the number of people searching Google with the term “delete Facebook” (Google, 2011) and such campaigns as “Quit Facebook Day” (Milan & Dee, 2010) provide some evidence to suggest changing attitudes in this respect.

Christofides et al. (2009) found that disclosure of information was predicted by users’ need for popularity, and that information control was predicted by high self-esteem and/or low trust in others. They demonstrated, therefore, that disclosure and control are “different processes affected by different aspects of personality” (p. 343). Taken together with the findings of Ellison et al. (2007), this suggests that people with low self-esteem may see information-sharing as a lever for gaining acceptance and are less choosy about those from whom they seek this affirmation, whereas “those with higher self-esteem are only concerned about

popularity within their chosen circle” (Christofides et al., 2009, p. 343).

Does Facebook Make the (Socially) Rich Even Richer?

There has been considerable debate (for review, see Parks & Floyd, 1996) about whether computer-mediated communication erodes intimacy—that is, as a result of the fundamental human need for face-to-face interaction and physical stimuli which is lacking in Internet-based relationships (Ben-Ze’ev, 2005; Alapack, Blichfeldt, & Elden, 2005)—or strengthens it, by enabling people to build “social capital” (Bourdieu, 1986), engaging with others with whom they are unable to maintain bonds otherwise (Ellison et al., 2007; Mathwick, Wiertz, & De Ruyter, 2008). So, is Facebook more popular among those with many or few real-world friends?

There is strong support for the view that use of online SNSs *complements* rather than replaces or is inferior to offline communication (e.g., Kujath, 2011; Ellison et al., 2007) despite evidence from studies of more general Internet use to the contrary (e.g., Kraut et al., 1998; Parks & Roberts, 1998). The literature suggests that computer-mediated communication is used primarily to strengthen existing relationships and only secondarily to forge new ones (for review, see Bargh & McKenna, 2004). Accordingly, Facebook is most often used as a way of building, rekindling, and/or maintaining relationships involving those with whom users share “some common offline element” (Boyd & Ellison, 2007). It has also been deemed particularly useful, for example, for maintaining relationships over long distances (Lee & Boyer, 2007).

Sheldon et al. (2011) found evidence to support a “two-process interpretation” of Facebook usage: people engage in Facebook to avoid feelings of disconnection (i.e., relatedness-need dissatisfaction)—and Facebook use works to achieve this—and they also gain feelings of connection (i.e., relatedness-need satisfaction) by using the site. Sheldon et al. found these processes to work independently, such that while “disconnection drives Facebook use and connection rewards it” (2011, p. 766), using the site more can increase connection without decreasing disconnection. They conclude that the

site can, in this way, serve as a distraction from real-world problems but will not remedy them.

Early research found support for the poor-get-richer hypothesis, in respect to the relationship between Facebook usage and self-esteem (Ellison et al., 2007). This was contextualized within a body of knowledge that suggested Internet users who avoid face-to-face interaction, or who find it less rewarding, found the Internet a more favorable—and a lower-risk—vehicle for developing interpersonal relationships (e.g., Papacharissi & Rubin, 2000; Ward & Tracey, 2004). There is growing evidence, however, to support the rich-get-richer hypothesis (Kraut et al., 2002; Sheldon, 2008) in virtual social interactions. Those with lower self-esteem and higher social anxiety in real life may spend more time on Facebook, perhaps seeking connection or distraction, but are, in fact, more likely to have fewer friends than those who thrive interpersonally in the real world (Mehdizadeh, 2010; Sheldon, 2008). These findings are consistent with those from comparable studies of other online arena: for example, people low in dating anxiety and high in sensation-seeking are more likely to engage in online dating (Valkenburg & Peter, 2007), an activity that has also been shown to correlate with the “recreation hypothesis” but not the “compensation hypothesis” (Peter & Valkenburg, 2007, p. 455). This suggests, again, that online networking is seen as an addition to real-world interactions rather than as something that compensates for offline inadequacy of some type.

Outcomes: Why Make Friends on Facebook?

What Purposes Do Facebook Friends Serve?

Because users of Facebook are motivated by a desire to manage new and existing relationships, it is important to consider the impact of making (or being) a Facebook friend. Before doing so, however, we need first to delineate briefly how people make sense of the profiles they view on Facebook. Interpersonal interaction is informed not only by how a person presents him- or herself (Goffman, 1959), but also by the ability of perceivers to accurately infer characteristics from that self-presentation (Funder, 1995). We know that, in the real world,

people can accurately infer both personality attributes and situational outcomes from only minimal, “thin slices” of information (e.g., Ambady & Rosenthal, 1992; Gottman & Levenson, 2002; Gosling, 2008; Graham, Sandy, & Gosling, 2011), and the empirical evidence suggests this also applies to Facebook (e.g., Back, Schmukle, & Egloff, 2008; Stecher & Counts, 2008). Indeed, packaging information in a way that facilitates rapid access to, and digestion of, information has never been more important. Studies of information needs and provision have identified “zero tolerance for delay” among Internet users—that is, an expectation that they will be able to access the data they want, instantaneously—a demand that is both driven and reinforced by the capabilities of new media (Williams & Rowlands, 2007, p. 17). Facebook is part of this movement and its platforms enable members, theoretically, to use the relatively small amounts of information contained within a profile to make rapid and reasonably accurate assessments of large numbers of potential friends.

Evidence from the real world suggests that, in any large network of friends, only a small proportion will be close friends (Hill & Dunbar, 2003), perhaps explained in part by the theory that we have only limited cognitive capacity to maintain social relationships (Dunbar, 1993). While the same may be true for Facebook, unlike the offline context, Facebook users can develop much bigger networks (Acar, 2008). In sociological and psychological theory, an “interpersonal tie” describes the link between individuals through which information can be channeled. In general terms, ties can be said to be “strong” or “weak” depending on the “amount of time [invested], the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie” (Granovetter, 1973, p. 1361). Applying this to Facebook, we see that the friends made online are people with whom users can create and maintain both weak and strong interpersonal ties. This means that they can forge and sustain information-facilitating connections with existing, close friends as well as with less well-known (or unknown) acquaintances (Donath & Boyd, 2004; Ellison et al., 2007). Both weak and strong ties provide benefits in terms of increasing social capital (Williams, 2006; Ellison et al., 2007), that is, increasing the individ-

ual and group utility resulting from use of personal networks or relationships. Exploring interpersonal relationships in general, Putnam (2000) identified two types of social capital: “bridging” (resulting from intergroup networks being developed) and “bonding” (resulting from intragroup network strengthening). Weak ties, eliciting bridging social capital (Putnam, 2000; Ellison et al., 2007), can provide information or employment-related benefits, but are less useful for emotional support (Granovetter, 1973).

It has been suggested that Facebook is particularly useful for developing bridging capital because it encourages users to “convert latent to weak ties” (Ellison, Steinfield, & Lampe, 2011) and to manage weak ties in a time-efficient way (Vitak, Ellison, & Steinfield, 2011). Strong ties, which can also be supported by Facebook, can educe “bonding” social capital, which strengthens further the connection between people with a close and typically preexisting personal relationship (Ellison et al., 2007; Stefanone, Kwon, & Lackaff, 2011). It may be that those who feel lonely, because they lack close ties in the real world, could benefit from the ready-made support network provided by the Facebook pool (after Bargh & McKenna, 2004), but the extent to which people ask for, and provide, support of this type to others may relate to self-esteem, given that people high in self-esteem are less likely to accept “friend requests” from users they do not already know (Acar, 2008).

How Do People Perceive Facebook “Friends”?

Predictably perhaps, network size predicts time spent using the site, although women spend more time online than men overall, irrespective of network size (Acar, 2008). As one would expect, and in line with the “rich get richer” theory, extraversion is positively correlated to network size (Acar, 2008) and, accordingly, those with moderately high numbers of friends are perceived by others to be significantly more extraverted than those with few friends Tom Tong, Van Der Heide, & Langwell, 2008. This relationship is not straightforward, however, given that ratings of extraversion decreased with very high numbers of friends, suggesting friends have been acquired “not . . . as a result of extraversion, but rather by some other characteristic” Tom Tong et al., 2008, p. 542.

While a network comprises a number of Facebook friends, this term appears to be interpreted slightly different online than offline Tom Tong et al., 2008. Specifically, there may be a perception that friendships are less credible or valid if they are too great in number: Tom Tong et al., (2008) found a curvilinear relationship between the number of friends and rated social attractiveness (but not physical attractiveness) such that a user was deemed more popular as number of friends increased up until the optimum number (302 friends, which was also the average number per user), after which rated social popularity decreased. In addition, users also judge others' attractiveness based on the friends in their network. In this respect, profile owners are viewed more favorably if their friends are physically attractive and, for women profile owners, if their friends do not post messages that could implicate the profile owner in behavior likely to be viewed in a negative (Walther, Van Der Heide, Kim, & Westerman, 2008); men whose friends post messages implying negative moral behavior, however, are viewed as being more attractive.

There is also evidence of a counter-Facebook movement, driven perhaps in part by concerns that the site promotes a superficial kind of friendship. Some commercial brands have exploited this sentiment: a Burger King marketing campaign, for example, involved the creation a Facebook application—"Whopper Sacrifice"—offering a free burger in return for deletion of 10 friends (Walsh, 2009). Only 10 days after its launch, Facebook disabled the application on the grounds that it breached its privacy regulations, although nearly a quarter of a million people had already been de-friended during this time. This illustrates how virtual media has not only transformed the nature of friendship, but also arguably devalued it (to the cost of 37 cents per person precisely, Wortham, 2009).

What Are the Downsides of Building Facebook Relationships?

The public nature of a person's Facebook profile means that users' social lives are particularly open to scrutiny from others (Muisse et al., 2009; Boyd & Ellison, 2007). While positive feedback given via SNS can boost self-esteem, for negative comments the opposite can be true (Valkenburg et al., 2006). Similarly, while

some users benefit from feeling more socially included because they participate in SNS communities, particularly when they feel isolated from others in the real world (Sheldon, 2008), when online engagement is a form of avoidant coping, users may be less likely to face real-world problems (Kim et al., 2009; Green & Brock, 1998).

Facebook also has the potential to create real-world problems that did not previously exist. On examining the role played by Facebook in romantic relationships, for example, Muise et al. (2009) found that site use can lead to increased jealousy and/or obsessive behavior, as a result of the opportunities it provides users to "access . . . information about their partner that would not otherwise be accessible" (p. 443). This, in turn, positively reinforces ongoing "surveillance behavior" (p. 444). Muise et al. (2009) found that participants were able to reflect objectively on this vicious cycle, but often were unable to break it, citing its addictive nature. Indeed, an overreliance on Facebook more generally may mean that cessation of use can have a negative impact: Sheldon and Hirsch (as cited in Sheldon et al., 2011) found that reduction in use correlated with "reduced aggression, procrastination, and negative affect, and with increased life-satisfaction, but it was also associated with reduced positive affect" (Sheldon et al., 2011, p. 773).

Next Steps: What Next for Facebook Research?

Given the rapid advancements in technology and the ever-increasing demand among consumers for more and better ways to connect, communicate, and conduct business, there is considerable scope for ongoing research into the psychology of Facebook use. While this review has summarized some of the main findings with respect of the antecedents, behaviors, and effects relating to Facebook use, there are still gaps in the research to date that may be worth studying in more detail.

First, although researchers have expended considerable effort in understanding how people use the site's core features—specifically, how they create and perceive profile content and befriend other users or brands—there is still only a relatively limited amount known about the personality correlates of these and other,

more specific Facebook-related activities, for example, participation in virtual events, dating, engagement in research or marketing activities, use of “walls,” and so forth.

Second, it might also be advantageous to understand more about *how* Facebook encourages different types of communication. What are the individual-level predictors that determine the extent to which users are likely to take advantage of different features and cues for communication? While there is already a growing body of literature on the differential strength of network ties, there could usefully be more study to discern relative perception of such ties and their impact, and the relationship between these and individual users’ psychological characteristics. Related to this, it would be worth exploring expectations of other users within different Facebook contexts, to understand, for example, whether personality predictors play a different role if the user is viewing another person’s profile to appraise that person as a possible romantic partner or simply as someone with whom there is some apparent commonality. Given the previous research bias toward student populations, it may also be useful to study the perceptions and use of Facebook among other groups.

Third, much study has focused on—or assumed—a psychologically “healthy” population. Because the profile of SNS users increasingly reflects the profile of the offline community, it may be worthwhile researching in more detail the impact of both nonclinical “dark” personality traits and clinically significant psychological conditions on Facebook usage and impact. There is also scope to explore in more detail the potentially negative impact of Facebook use. This review has identified some of the emerging evidence in this respect, but it appears to be patchy; future work could address this issue more systematically, perhaps with a multilevel model that identifies risks associated with Facebook use in the short, medium, and longer term, at the individual, corporate, and societal level. Addressing the darker side of Facebook might also involve exploring further its role in relation to relevant group phenomena such as peer pressure and cyber-bullying.

Building on evidence from research (and popular culture discourse) that identifies a group of Facebook users who want to reduce their usage of the site, future studies could also

explore the issue of “problematic” Facebook use, specifically: agreeing to a definition of what this means in practice; developing a measure that determines when use becomes problematic; and studying the antecedents, behavior, and outcomes associated with problematic use.

Fourth, it is important to remember that online culture is very fast-paced. There may be value, therefore, in studying the perception of Facebook friendship longitudinally, to track the changing nature of this concept over time. Researchers could also build on previous studies by undertaking further mixed-mode work that tests users’ perceptions of others as activities move from the online to the offline arena. Some comparable work has been conducted in relation to Internet dating, which may provide some lessons.

Finally, there is considerable scope to explore some of the methodological issues presented in this review. There may be benefit, for example, in researchers working to consolidate the current plethora of measures in use, into one or more standardized inventories, applicable to a range of SNSs. The aim of this would be not only to save researchers from reinventing the wheel, but also to respond to the fact that SNSs have expanded their services and available content considerably since early scales were developed. In terms of improving the accuracy and relevance of measurement, it might also be useful to develop new population norms specific to different groups of Facebook users. Similarly, where research is reliant on established theory that predates new media (and its associated modes of communication), it could be worthwhile investing time in revalidating theory with specific reference to the digital context.

In general, it will be important to diversify the methodologies in use in Facebook research, which, at present, rely very heavily on subjective accounts. Specifically, it is worth exploring options for validating self-report data while also examining the impact of the tension this creates between the nonymous identity (which implies nonconfidentiality) and providing research data that accurately reflects participants’ thoughts and behavior. Tracking software that captures data on website usage and behavior is already available, and while this may provide a useful addition to Facebook research, the ethical issues relat-

ing to privacy, confidentiality, and data use would need to be considered carefully.

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