# Students' self-presentation on Facebook: An examination of personality and self-construal factors

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## ABSTRACT

The present research seeks to extend existing theory on self-disclosure to the online arena in higher educational institutions and contribute to the knowledge base and understanding about the use of a popular social networking site (SNS), Facebook, by college students. We conducted a non-experimental study to investigate how university students ($N$ = 463) use Facebook, and examined the roles that personality and culture play in disclosure of information in online SNS-based environments. Results showed that individuals do disclose differently online vs. in-person, and that both culture and personality matter. Specifically, it was found that collectivistic individuals low on extraversion and interacting in an online environment disclosed the least honest and the most audience-relevant information, as compared to others. Exploratory analyses also indicate that students use sites such as Facebook primarily to maintain existing personal relationships and selectively used privacy settings to control their self-presentation on SNSs. The findings of this study offer insight into understanding college students' self-disclosure on SNS, add to the literature on personality and self-disclosure, and shape future directions for research and practice on online self-presentation.

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## 1. Introduction

The large and burgeoning influence of social networking sites (SNSs) such as Facebook and Twitter has brought significant changes to information distribution and the cultural norms of social relationship. These technologies provide new means for individuals to present themselves, access and broadcast information, articulate their social networks, and establish and maintain connections with others. In higher educational institutions, on one side, the explosion of social media provides students with unprecedented learning and networking opportunities (Chen & Bryer, 2012). On the other side, educators expressed concerns about the openness over negative consequences of students' self-disclosure on SNSs (Bryer & Chen, 2010). According to recent media reports, individuals' posts on SNSs were used by potential employers in assessing their employment qualifications and individuals were penalized or criminally charged on the basis of their text or photo posts (Christofides, Muise, & Desmarais, 2009; Peluchette & Karl, 2008). Understanding the way individuals behave and disclose information on such sites is a potentially valuable source of information for practitioners and researchers.

Our goal in this paper is to investigate how young adults use SNSs, and factors that might impact their self-presentation on those sites, such as general disclosiveness, cultural heritage and personality. We examine these factors using a non-experimental survey-based method. We hope to provide insights to help educators understand students' online behaviors and potentially facilitate these behaviors to best utilize such networked learning opportunities. From a broader psychological perspective, we hope to shed light on the individual difference variables that determine how individuals disclose information about and present themselves in online SNS environments such as Facebook.

## 2. Self-presentation and social networking sites

Self-disclosure is defined as any message about oneself that an individual communicates to another (Wheeless, 1978; Wheeless & Grotz, 1976, 1977). It is the factual communication that an individual uses to present oneself, i.e. self-presentation (Johnson, 1980). Self-disclosure and self-presentation processes are important aspects of relational development in in-person communications (Derlega, Winstead, Wong, & Greenspan, 1987). Earlier research has shown that individuals tend to respond to self-disclosures from others by revealing aspects of their own identity (Derlega et al., 1987) and individuals tend to highlight one's positive attributes for self-enhancement (Schlenker & Pontari, 2000). Self-disclosure progresses in both depth and breadth across time (Levinger & Snoek, 1972). As personal relationship develops, individuals tend to present one's true or authentic self to others, ranging from

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superficial factual to personal, private or intimate details about oneself (Chelune, 1979; Greene, Derlega, & Matthews, 2006).

In recent years, the use of social networking sites (SNSs) has surged globally. Based on the individual companies' recent statistics, Facebook reached a total of 901 million users (Facebook, 2012); LinkedIn had over 150 million members (LinkedIn, 2012); Twitter hit over 177 million tweets per day (Twitter, 2011); and YouTube reached four billion views per day (YouTube, 2012). Research shows that individuals use SNSs for a variety of activities, including maintaining existing relationships, making new friends, passing time, for self-expression, for student and political activism, as a task management tool, and for learning purposes (Hew, 2011; Special & Li-Barber, 2012; Tosun, 2012). A typical college student spends between 10 and 60 min on Facebook every day (Hew, 2011) and is constantly involved in self-disclosure and presentation activities to a large audience on the Internet (Hum et al., 2011). The increasing popularity of SNSs has brought a different perspective on the issue of self-presentation.

There is a growing body of literature examining online self-presentation (Gibbs, Ellison, & Heino, 2006; Hew, 2011; Rettberg, 2009; Zhao, Grasmuck, & Martin, 2008). Prior research has suggested that the online environment can alter personal identities, such that individuals tend to disclose more information about themselves compared to other means of communication (Christofides et al., 2009; Gibbs et al., 2006). A recent literature review indicated that identities produced online were found to be realistic and honest on SNSs such as Facebook (Hew, 2011) because students realized false information would be questioned by their friends. On the other hand, however, it has also been found that individuals tend to stretch the truth a little in their online self-presentations (e.g., selectively displaying only flattering photos of themselves; Gibbs et al., 2006). Thus, it is not completely clear from the extant literature whether online self-disclosures may be more or less veracious than the concomitant form of in-person self-disclosure.

The theoretical paradigm offered by traditional theories of interpersonal interactions posits that individuals are likely to be both more forthcoming and honest in the disclosure of information as relationships progress over time (Levinger & Snoek, 1972), as opportunities for reciprocal exchange of information grow (Berger & Calabrese, 1975), and as relationships develop and become more intimate (Taylor & Altman, 1987). Hence, relationships characterized by more frequent and long-term interactions tend to result in more in-depth and more honest disclosure (Gibbs et al., 2006; Pavica, 2010). On the face of it, this train of thought would make it seem likely that the relative anonymity and enhanced personal distance of computer-mediated communication (i.e., online environments) would result in a pattern of self-disclosure both less forthcoming and veracious. However, to the extent that many users of SNSs such as Facebook use them as tools to create and maintain relationships (Hew, 2011), it can be construed that both in-person and online interactions on such sites do not differ in terms of length and depth of interpersonal interactions.

A countervailing argument is provided when one views the SNS environment through a lens of individual privacy. Privacy and cyber-security have been reported as the top concerns for students' information disclosure in the SNS environment (Bryer & Chen, 2010). Recent studies suggest that SNS users, including college students, are concerned with their privacy and conscious of the impression on other people including their teachers, family member, current and potential employers (Christofides et al., 2009). Privacy is a non-trivial concern, as highlighted by recent news reports indicating that sites such as Facebook, Google and other technology companies utilize online tracking tools to monitor and record the behavior of users after they leave the site (Acohido, 2011; Murphy, 2012).

Hence, the possibility of one's information being used and scrutinized by unknown third parties may dampen the degree to which individuals disclose information online via SNSs. Conversely, no such tracking would occur in face-to-face interactions, whereby individuals do not leave electronic or written records of their activity. Thus, it can be expected that individuals would be likely to disclose more information, be more intentional in their disclosures, exhibit less monitoring of information disclosed, and be more honest in their disclosures in-person rather than online. Alternatively, it is likely that individuals will act in a more socially desirable manner by disclosing more positive information and disclosing information more relevant to the interests of their audience in an SNS environment, where there remain electronic records and traces of one's interactional behaviors.

In light of the above review, our first hypothesis is as follows:

**Hypothesis 1.** Individuals will disclose more information, be more intentional, more honest, exhibit less monitoring of information, disclose less positive information, and disclose less relevant information in-person vs. online.

## 3. Independent and interdependent self-construals

Markus and Kitayama (1991) theorized the existence of independent and interdependent self-construals, whereby the independent self-construal emphasizes separation from the social context and is both internal and private, whereas the interdependent self-construal emphasizes connectedness with the social context, and is external and public. These dual worldviews are conceptually homologous to what Triandis (1995) defined to be idiocentrism and allocentrism, individual-level manifestations of the cultural constructs known as individualism and collectivism. Individualism is a cultural worldview that manifests itself in the formation of tendencies to separate, isolate, and alienate the self, the urge to master one's environment, and emphasizes the self over the collective; collectivism is manifested in the formation of tendencies toward contact, openness, and union, the urge to cooperate with the environment, and emphasizes the collective over the self (Hofstede, 2001; Triandis, 1995). Thus, individuals holding independent self-construals (idiocentrics) are individualistic, and individuals holding interdependent self-construals (allocentrics) are collectivistic.

These two views of the self are not mutually exclusive, and research has found that either conception of the self may become salient depending upon environmental cues that prime one or the other self-concept (Brewer & Gardner, 1996). In other words, an individual may view him/herself in relation to the group if placed in a situation that made group membership salient, and vice versa. Therefore, situations that emphasize group relations and the social context may influence individuals to behave more collectively. Chatman and Barsade (1995) examined this relation between self-construal and situational norms (i.e., individualistic vs. collectivistic situational norms) and found that people with interdependent self-construals (idiocentrists) were very co-operative under collectivistic situational norms but behaved uncooperatively when placed in situations where an individualistic culture dominated. Using follow-up qualitative responses, the researchers explained that individuals holding interdependent self-construals (allocentrists) were willing to adjust and make decisions based on individualistic expectations regardless of their own preferences. Hence, in a situation that emphasizes collectivistic norms, the difference in behavior between allocentrists, who match their behaviors to the environment, and idiocentrists, who are unlikely to be affected by the environment (unless doing so would benefit the self), is likely to be larger. Contrarily, in an individualistic

environment, allocentrists may adjust (down) their behaviors to match environmental cues, whereas idiocentrists' behaviors may remain less affected.

One example of an environment that emphasizes collectivistic norms is one where individual accountability is high. Accountability is "the condition of being answerable for conducting oneself in a manner that is consistent with relevant prescriptions for how things should be" (Schlenker & Weingold, 1989, p. 24). In situations defined by high accountability, images of standards and expectations of an audience are made salient for one's behavior, and in anticipation of being judged, individuals will attempt to match their behavior to those standards (Schlenker & Weingold, 1989). In other words, situations that emphasize high accountability for one's actions are situations whereby standards of openness and contact are highlighted, and collective behavioral standards are emphasized.

Online SNSs such as Facebook, where all information is publicly recorded in electronic form and is purvey to the discerning views of a vast audience, would represent high accountability, or collectivistic, situations. As delineated above, in such a (collectivistic) situation, individuals holding interdependent self-construals (allocentrists) would likely adjust and monitor their self-disclosure to a greater extent than in an in-person situation. That is, because the highly accountable online SNS environment would emphasize normative and publicly judged standards of behavior to a greater extent, allocentrists would likely disclose less individuating and more normatively acceptable information online vs. in-person. Alternatively, idiocentrists would likely be less influenced by situational norms, and thereby display not much difference in self-disclosure behaviors online vs. in-person. Thus, the second set of hypotheses is as follows:

**Hypothesis 2a.** Individuals holding interdependent self-construals (allocentrists) will disclose less information, be more intentional, less honest, exhibit more monitoring of information, disclose more positive information, and disclose more audience-relevant relevant information online vs. in-person.

**Hypothesis 2b.** Individuals holding independent self-construals (idiocentrists) will not self-disclose differently online vs. in-person.

## 4. Extraverted personalities

Extraversion is a facet of the Five Factor Model of Personality (FFM; Digman, 1990) and describes the extent to which individuals feel more or less comfortable engaging in direct interactions with others. Individuals rated low on extraversion can be described as quiet, reserved, retiring, shy, silent, and withdrawn; individuals rated high on the extraversion factor can be described as gregarious, venturesome, outgoing, and talkative (McCrae & John, 1992). Extraversion, along with other facets of the FFM, has been found to be stable across the lifespan of the individual (McCrae & Costa, 1990), and across cultures (McCrae & Costa, 1997; McCrae & Terraciano, 2005). Much evidence indicates the importance of this facet of personality for behavioral outcomes (e.g., job performance; Onez, Viswesvaran, & Schmidt, 1993).

Extraversion is particularly relevant in the context of self-disclosure because it concerns the extent to which individuals are likely to be socially active, socially adaptable, and interpersonally interactive (Digman, 1990). Intuitively, people who are more socially and interpersonally active are likelier to share more, regardless of communication modality. However, to the extent that SNS-mediated communication represents a highly accountable environment, characterized by publicly tighter standards and norms of behavior, it is likely that individuals who are more

inhibited (i.e., less extraverted) will be even less inclined to self-disclose. That is, because the SNS environment may discourage disclosure of individuating information by its very nature of keeping electronic and publicly available records of online interactions, individuals who are less socially and interpersonally active may react by disclosing even less online than they otherwise would, as compared to more extraverted individuals. Recent research on the effect of personality on individual behavior in SNSs buttresses these notions. Specifically, more extraverted individuals have been found to report membership in significantly more Facebook groups and to have more friends than less extraverted individuals (Amichai-Hamburger & Vinitzky, 2010; Ross et al., 2009), and extraversion has been found to be positively and significantly correlated with preferences for all Facebook communicative features (Ryan & Xenos, 2011). Thus, we propose the following:

**Hypothesis 3.** As contrasted to more extraverted individuals, less extraverted individuals will disclose the least information, be least intentional, least honest, exhibit most monitoring of information, disclose most positive information, and disclose most audience-relevant information online.

Finally, it can be argued that the online and collectivistic environment would particularly impact less extraverted individuals who hold interdependent views to begin with. Individuals with interdependent self-construals (allocentrists) emphasize harmony within societal contexts and the fundamental connectedness of collectives (Markus & Kitayama, 1991). As such, in a collectivistic environmental culture, whereby the public nature of information may discourage the disclosure of individuating information, low-extraverted who are also allocentric would be particularly expected to match their behaviors to the environment, and thereby be least inclined to self-disclose. This leads to our last hypothesis:

**Hypothesis 4.** Contrasted to other individuals, individuals low on both interdependence and extraversion, and interacting in an online environment, will disclose the least information, be the least intentional, be least honest, exhibit most monitoring of information, disclose the most positive information, and disclose the most audience-relevant information.

## 5. Method

The majority of previous research on self-presentation was reported based on various forms of self-report data (such as surveys and interviews) or content analysis of information on SNSs (Hew, 2011). Therefore, a questionnaire survey based on reliable measures was deemed as an appropriate data collection method in this study. We targeted this study on the most popular SNS, Facebook. For the benefit of survey respondents, we defined SNS as "a web-based service that allows individuals to construct personal profiles and communicate with their list of connections" (Boyd & Ellison, 2008).

### 5.1. Participants

Participants ($N = 463$) were undergraduate Psychology students at a large, southeastern university in the United States. The sample was 71% female, 58.5% White, and between the ages of 18 and 51 ($M = 20.57$; $SD = 4.72$). Ninety-two point seven percent of participants were single, 5.6% were married, and 1.1% were divorced. Forty-four percent of respondents were college Freshmen, 12.3% were Sophomores, 16.5% were Juniors, 25.5% were Seniors, and 1.7% were in pursuit of a second degree. Approximately 90% of participants ($n = 418$) reported using Facebook as their SNS of choice; approximately 6% most preferred Twitter ($n = 27$), .6% ($n = 3$) most

preferred MySpace, .9% ($n = 4$) most preferred LinkedIn, and approximately 2.5% ($n = 11$) most preferred "Other" social networking sites.

## 5.2. Measures

All items were measured using 6-point scales (1 = "Disagree Very Much"; 6 = "Agree Very Much"). Scale anchor wordings were chosen based upon magnitude estimation research by Bass, Cascio, and O'Connor (1974). Coefficient alphas and intercorrelations for all scales are presented in Table 1.

### 5.2.1. Self-disclosure

Six aspects of self-disclosure, including intent, amount, positivity, honesty, control and relevance were measured, based on scales originally developed by Wheeless and Grotz (1976, 1977); Wheeless (1978). These measures were chosen because they offer insight into a number of important dimensions of self-disclosure. Such measures were used and tested by previously researchers to measure not only in-person but also online self-presentation (Gibbs et al., 2006).

Each scale was administered twice, to measure both aspects of in-person and online communication. Self-disclosure intent was measured using three items (e.g., "When I wish, my self-disclosures [in person / online] are always accurate reflections of who I really am"). Amount of self-disclosure was measured using four items (e.g., "I rarely express my personal beliefs and opinions [in person/online]"; reverse-coded). Positivity of self-disclosure was measured using three items (e.g., "I usually disclose positive things about myself [in person/online]"). Honesty of self-disclosure was measured using three items (e.g., "I am honest in my self-disclosures [in person/online]"). Control of self-disclosure was measured using three items (e.g., "Once I get started, I cannot stop expressing myself [in person/online]"). Relevance of self-disclosure was measured using two items (e.g., "My [in-person/online] disclosures regarding personal beliefs and opinions are relevant to the interests of my audience").

### 5.2.2. Self-construal

A four-item measure from Wagner (1995) was used to measure idiocentrism (e.g., "I believe that only those who depend on

themselves get ahead in life"). Higher scores on the measure represent independent self-construals (idiocentric) and lower scores represent interdependent self-construals (allocentric).

### 5.2.3. Extraversion

Four items measuring extraversion were taken from the Mini-IPIP, a 20-item short form of the 50-item International Personality Inventory Pool (Donellan, Oswald, Baird, & Lucas, 2006). A sample item is "I am the life of the party". Higher scores indicate greater degrees of extraversion. Although the FFM includes personality factors other than extraversion (e.g., conscientiousness, agreeableness), we only focus on the former here because it is the most theoretically relevant to our study hypotheses.

### 5.2.4. SNS usage habits

Although not hypothesized, we also surveyed respondents regarding their SNS usage habits, for exploratory purposes. Respondents were queried regarding the number of SNSs they currently have a profile on (1 question), whether they have single or multiple profiles on the SNSs they use, which SNS they most frequently use (1 question), how often they visit their most preferred SNS (1 question), whether they selectively restrict access to (a) photos, (b) posts/updates, and (c) some profile information (1 question each), and whether they use SNSs to keep in touch with (a) friends (b) colleagues/co-workers, and (c) to fulfill school or work requirements (1 question each).

### 5.2.5. Covariates

Sex was covaried because a recent review of the literature indicates that sex predicts information disclosure – females spend more time on Facebook, have larger friend networks, and place greater privacy restrictions on their profiles than males (Hew, 2011; Hum et al., 2011). Similarly, race was covaried because it has been found to predict both personality (i.e., extraversion) and homogeneity of friendship networks (Lee, 2012; Seder & Oishi, 2009).

### 5.2.6. Survey procedure

This study utilized a survey design to determine students' uses of SNSs, conducted in July 2011, with the permission of the institutional review board. The survey (Appendix A) was hosted on

**Table 1**
Means, standard deviations, and intercorrelations between study variables.

| Var | M | S | IntI | AmtI | PosI | HonI | ConI | RelI | IntO | AmtO | PosO | HonO | ConO | RelO | Ind | Ext |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IntI | 4.24 | .92 | (.67) | | | | | | | | | | | | | |
| AmtI | 3.94 | .90 | .03 | (.70) | | | | | | | | | | | | |
| PosI | 4.30 | .84 | .43** | .08 | (.64) | | | | | | | | | | | |
| HonI | 4.62 | .86 | .50** | .31** | .43** | (.58) | | | | | | | | | | |
| ConI | 4.00 | .87 | −.04 | −.21** | −.01 | −.02 | (.40) | | | | | | | | | |
| RelI | 3.33 | .71 | −.08 | −.05 | −.03 | −.07 | −.02 | (.32) | | | | | | | | |
| IntO | 4.30 | .97 | .59** | .02 | .33 | .38** | .03 | −.09 | (.63) | | | | | | | |
| AmtO | 3.44 | .97 | −.17** | .40** | −.07 | −.12* | −.05 | −.04 | −.20** | (.68) | | | | | | |
| PosO | 4.46 | .85 | .29** | .14* | .56** | .33** | −.07 | .00 | .39** | −.11* | (.56) | | | | | |
| HonO | 4.53 | .83 | .37** | .20** | .40** | .62** | .02 | −.10* | .40** | .03 | .29** | (.39) | | | | |
| ConO | 4.60 | .91 | .08 | −.04 | .11* | .23** | .40** | .02 | .06 | −.30** | .08 | .15** | (.47) | | | |
| RelO | 3.32 | .79 | −.03 | −.03 | −.08 | .01 | .00 | .22** | −.07 | −.06 | −.05 | −.09* | −.04 | (.32) | | |
| Ind | 3.76 | .88 | .11* | −.05 | .06 | −.03 | −.17** | −.05 | .11* | −.03 | .05 | −.01 | −.14** | .04 | (.65) | |
| Ext | 4.03 | 1.05 | .16** | .30** | .24** | .23** | −.14** | −.03 | .07 | .18** | .13* | .18** | −.10* | .01 | .02 | (.79) |

*Note*: Coefficient alphas are listed along the diagonal.
M = mean; S = standard deviation; N = 463.
IntI = Intentions to disclose (in-person); AmtI = Amount of self-disclosure (in-person); PosI = positivity of self-disclosure (in-person).
HonI = honesty of self-disclosure (in-person); ConI = control of self-disclosure (in-person); RelI = relevance of self-disclosure (in-person).
IntO = intentions to disclose (Online); AmtO = amount of self-disclosure (Online); PosO = positivity of self-disclosure (Online).
HonO = honesty of self-disclosure (Online); ConO = control of self-disclosure (Online); RelO = relevance of self-disclosure (Online).
Ind = individualism (independent self-construal); Ext = extraversion.
* Significant at $p < .05$.
** Significant at $p < .01$.

SurveyMonkey.com, which is a survey construction and hosting web site. The first page of the survey presented respondents with the informed consent. In the survey questions, respondents identified their use habits of SNSs in their personal and professional life, and rated themselves based on the just-mentioned scales. Self-disclosure questions regarding disclosure of information both in-person and online were counterbalanced throughout the survey, to prevent order effects. Respondents were required to answer every question except for demographics-related questions.

## 6. Results

All analyses were conducted using SPSS 20. SPSS Frequencies was used to analyze information regarding SNS usage habits. Tests of study hypotheses were conducted using SPSS GLM Repeated-Measures, with a mixed-subjects design, and utilizing mixed-model Multivariate Analysis of Covariance (mixed-model MANCOVA). Modality (online disclosure vs. in-person disclosure) was included as a categorical repeated-measures independent variable, extraversion and idiocentrism were included as continuous between-subjects independent variables, respondent race and sex were included as covariates, and the six measured aspects of self-disclosure (intent, amount, positivity, honesty, control, relevance) were included as dependent variables.

One potential issue in our dataset was that respondent age varied widely, between 18 and 51. Although age has been found to predict frequency of Facebook use but not self-disclosure, friendship networks, or profile privacy protections (Hew, 2011), we nevertheless examined whether the large variability in respondent age may have affected results. To examine this possibility, we ran a Multivariate Analysis of Variance (MANOVA) with age as the predictor and all twelve self-disclosure variables as criteria. The multivariate main effect of age was not statistically significant ($F_{12,454}$ = 1.313, $p$ = .208, $\eta^2$ = .034). Thus, this latter variable was not considered for further analyses.

Alpha was set at $\alpha$ = .05 for tests of main effects and two-way interactions, and to $\alpha$ = .10 for tests of three-way interactions. As noted by Liakhovitski, Stone-Romero, and Jaccard (2008), increasing the alpha level is an acceptable strategy for increasing the power to detect the presence of higher-order interactions, because such interactions are smaller by nature, and thus require more statistical power to detect (c.f., Liakhovitski et al., 2008). Data were screened for multivariate outliers prior to hypotheses testing, in order to help prevent possible Type I and/or Type II errors (c.f., Fidell & Tabachnick, 2003). Four observations were discarded from analyses on grounds of being multivariate outliers, resulting in a final dataset of $N$ = 463 respondents.

In order to aid interpretability, plots of statistically significant interactions were created using dichotomized transformations of the continuous independent variables (individualism and extraversion), at one standard deviation below and above the mean, respectively. Thus, although hypotheses tests were run using the full range of these variables, only the observations on the lower (one SD below the mean) and higher ends (one SD above the mean) of individualism and/or extraversion are depicted.

Means, standard deviations, and intercorrelations between all study variables are listed in Table 1. As shown in Table 1, the various in-person vs. online aspects of self-disclosure are more highly correlated with their mirror aspects (e.g., correlation between amount of self-disclosure in-person vs. amount of self-disclosure online: $r$ = .40) than with other aspects (e.g., correlation between amount of self-disclosure in-person vs. honesty of self-disclosure online: $r$ = .20); none of the mirror dimensions are so highly correlated as to be indistinguishable from each other (i.e., the highest such correlation is between honesty of self-disclosure in-person

vs. honesty of self-disclosure online, at $r$ = .59). Thus, the various aspects of self-disclosure are generally weakly to moderately correlated with each other, but generally highly correlated to their mirror aspects. This pattern of intercorrelations supports the notion that these aspects of self-disclosure are independent dimensions (Wheeless, 1978; Wheeless & Grotz, 1976, 1977), and that in-person vs. online self-disclosure are different but related constructs.

### 6.1. SNS usage habits

Exploratory analyses regarding SNS usage habits showed that almost 99% of the respondents reported that they used SNSs. The majority ($n$ = 338) reported that they only used one or two SNSs and less than a quarter of the respondents ($n$ = 109) used three or four SNSs. Few respondents used more than four SNSs and the maximum number of SNSs students used was seven. The most preferred favorite SNS was Facebook ($n$ = 422). Twenty-seven respondents used Twitter, four used LinkedIn and three used MySpace. Most respondents ($n$ = 446) maintained one single profile on their favorite SNS. Most participants ($n$ = 313) were active on their most preferred SNS as they reported that they visited the site either very frequently or frequently. Most of our participants set up some privacy settings so that their full profile or photos were not released to the public; $n$ = 413 respondents selectively restricted access to their full profile, $n$ = 410 selectively restricted access to photos, and $n$ = 399 selectively restricted access to their posts/updates on their wall. Fig. 1 indicates that the goal for using online social networks among our participants was mostly staying in touch with friends and classmates. Few respondents used the sites for making new friends or for professional or academic purposes.

### 6.2. Hypotheses tests

Hypothesis 1 tested the main effect of modality (in-person self-disclosure vs. online self-disclosure). Hypothesis 2 tested the 2-way interaction between modality and self-construal. Hypothesis 3 tested the 2-way interaction between modality and extraversion, and Hypothesis 4 tested the 3-way interaction between modality, self-construal, and extraversion.

The multivariate repeated-measures main effect of modality was not statistically significant ($F$ (6, 444) = 2.02, $p$ > .05, $\eta^2$ = .027), thereby yielding no support for Hypothesis 1.

The multivariate mixed-subjects interaction between modality and idiocentrism was not statistically significant ($F$ (6, 444) = 1.86, $p$ > .05, $\eta^2$ = .024), thereby yielding no support for Hypothesis 2. The multivariate mixed-subjects interaction between modality and extraversion was statistically significant ($F$ (6, 444) = 2.33, $p$ < .05, $\eta^2$ = .03). Analysis of the univariate effects indicated a statistically significant interaction for relevance of self-disclosure ($F$ (1, 449) = 4.416, $p$ < .05, $\eta^2$ = .01), and a marginally significant
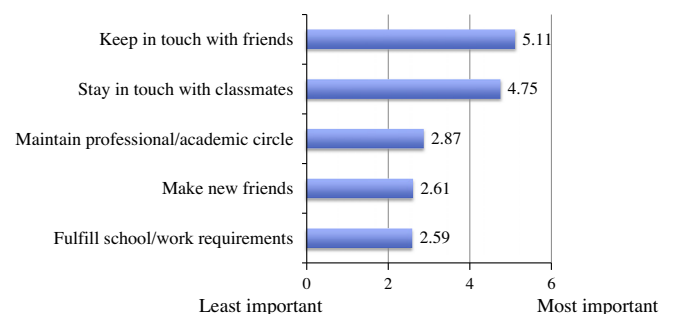


**Fig. 1.** The importance ratings of motivational goals for using SNS usage.

interaction for amount of self-disclosure ($F$ (1, 449) = 2.925, $p < .10$, $\eta^2 = .006$).

Fig. 2 depicts this interaction for relevance of self-disclosure. As shown, individuals scoring one standard deviation below the mean on extraversion disclosed just as audience-relevant information in-person ($M = 3.30$; SD = .98) as individuals scoring one standard deviation above the mean on extraversion (*M* = 3.28; SD = .6). However, contrary to the hypothesized directions, low-extraversion individuals disclosed less audience-relevant information online (*M* = 3.18; SD = .96) than highly-extraverted individuals (*M* = 3.4; SD = .80). Fig. 3 depicts the interaction for amount of self-disclosure. As expected, the least amount of information shared was by low-extraversion individuals interacting online (*M* = 2.8; SD = 1.09). These results yield mixed support for Hypothesis 3.

The above results are qualified, however, by the existence of a higher-order, 3-way multivariate interaction between modality, idiocentrism, and extraversion (*F* (6, 444) = 2.27, *p* < .05, $\eta^2 = .029$). Analysis of the univariate effects indicated a statistically significant interaction for relevance of self-disclosure (*F* (1, 449) = 5.471, *p* < .05, $\eta^2 = .012$), and a statistically significant interaction for honesty of self-disclosure (*F* (1, 449) = 2.881, *p* < .10, $\eta^2 = .006$).

Figs. 4a and 4b depict this 3-way interaction for relevance of self-disclosure. As expected, individuals low on both extraversion and idiocentrism (allocentrics) disclosed more audience-relevant information online (*M* = 3.44; SD = 1.16) than individuals low on idiocentrism but high on extraversion (*M* = 3.06; SD = .95); however, the former also disclosed the most audience-relevant information in-person (*M* = 3.56; SD = 1.16 for allocentric non-extraverts; *M* = 3.28; SD = .76 for allocentric extraverts). For idiocentrics, those low on extraversion disclosed less audience-relevant information online (*M* = 3; SD = .79) than those high on extraversion (*M* = 3.59; SD = .66); the same pattern was detected when in-person disclosure was considered, albeit to a lesser degree (*M* = 3.12; SD = .85 for idiocentric non-extraverts; *M* = 3.28; SD = .56 for idiocentric extraverts).

Figs. 5a and 5b depict this 3-way interaction for honesty of self-disclosure. As expected, individuals low on both extraversion and idiocentrism (collectivists) disclosed the least honest information online (*M* = 4.07; SD = 1.1 for allocentric non-extraverts; *M* = 4.78; SD = .78 for allocentric extraverts); the former also disclosed less honest information in-person, albeit to a lesser degree (*M* = 4.37; SD = 1.2 for allocentric non-extraverts; *M* = 4.85; SD = .75 for allocentric extraverts). For idiocentrists, those low on extraversion also disclosed less honest information online (*M* = 4.46; SD = 1.06) than those high on extraversion (*M* = 4.67; SD = .66); the same pattern was detected when in-person disclosure was considered, albeit to a lesser degree (*M* = 4.51; SD = 1.07
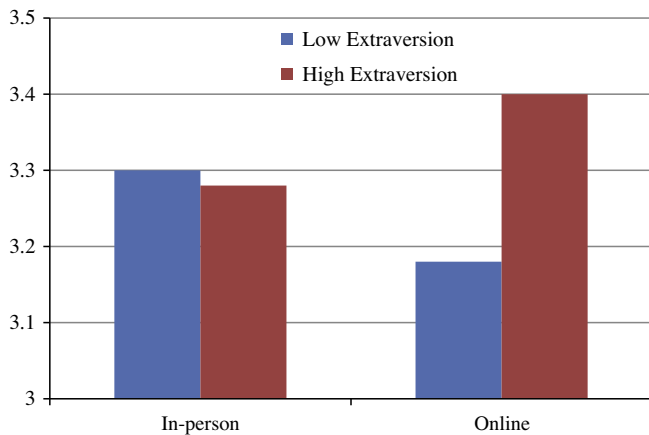


Fig. 2. Interactive relation between modality and extraversion on relevance of self-disclosure.



Fig. 4a. Interactive relation between modality and extraversion for allocentrists on relevance of self-disclosure.
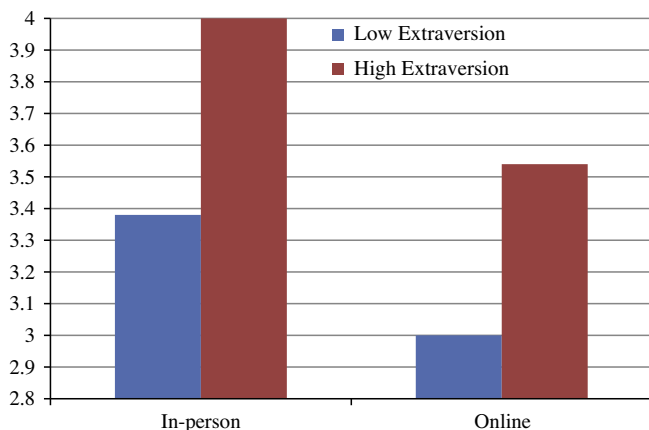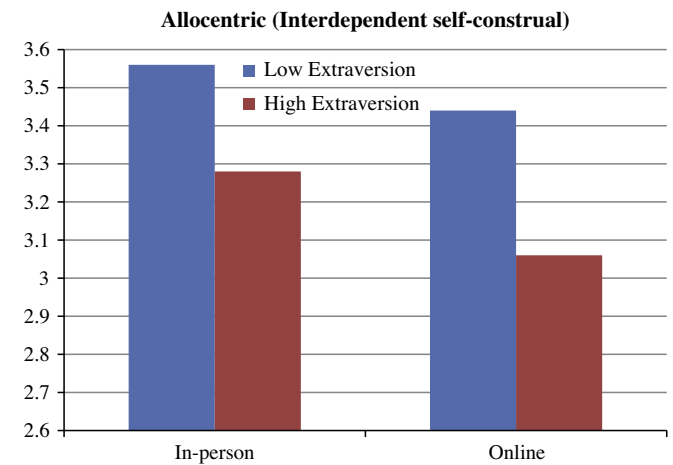


Fig. 3. Interactive relation between modality and extraversion on amount of self-disclosure.



Fig. 4b. Interactive relation between modality and extraversion for idiocentrists on relevance of self-disclosure.
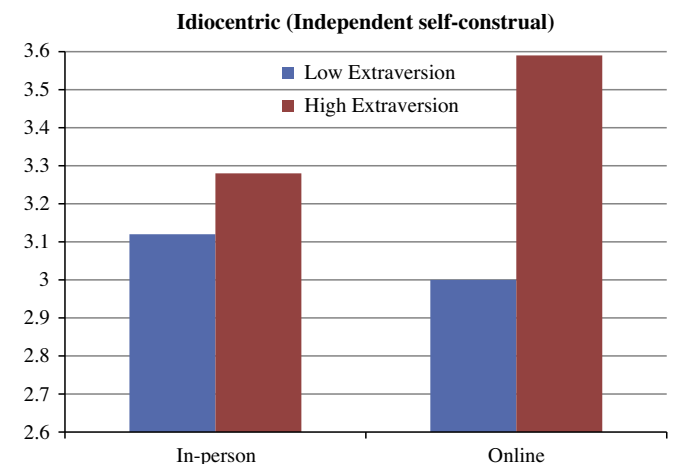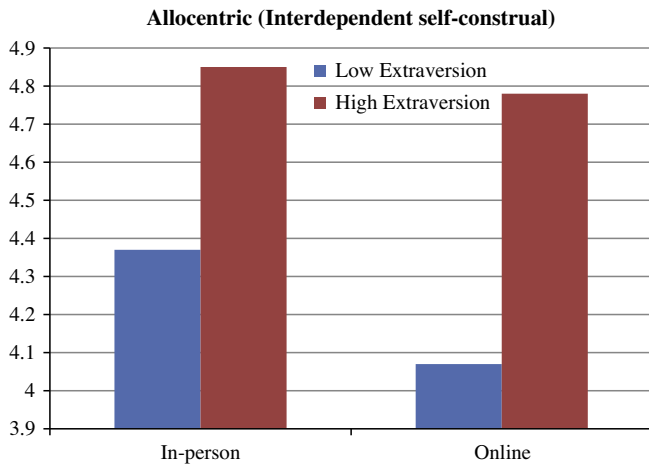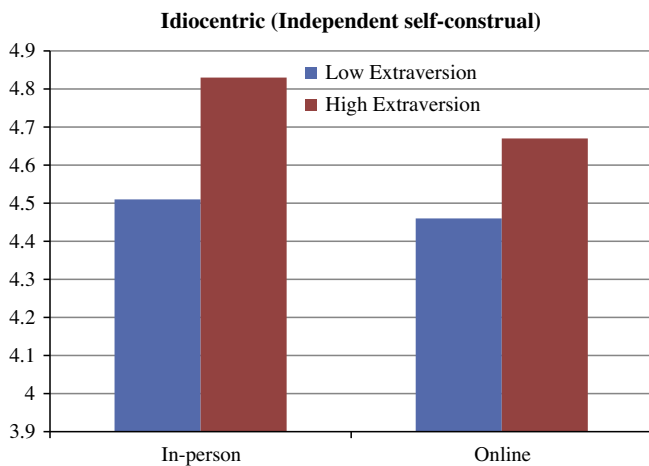
## Allocentric (Interdependent self-construal)



**Fig. 5a.** Interactive relation between modality and extraversion for allocentrists on honesty of self-disclosure.

## Idiocentric (Independent self-construal)



**Fig. 5b.** Interactive relation between modality and extraversion for idiocentrists on honesty of self-disclosure.

for idiocentric non-extraverts; $M = 4.83$; $SD = .77$ for idiocentric extraverts).

Thus, the least honest information disclosed was as hypothesized, by allocentric individuals low on extraversion, and interacting in an online environment. As expected also, allocentrists low on extraversion disclosed more audience relevant information online than allocentrists high on extraversion. Overall, the pattern of results across these two dependent measures generally supports the hypothesized direction for allocentric non-extraverts, thereby supporting Hypothesis 4.

## 7. Discussion

The current study investigated the relations between modes of self-disclosure, personality, and self-construal on the self-disclosure of information. Overall, it was found that mode of self-disclosure does predict self-disclosure but that this relation was tempered by both extraversion and idiocentrism. Specifically, it was found that individuals low on extraversion disclosed the least amount of information online, and individuals both low on extraversion and idiocentrism disclosed the most audience-relevant information and the least honest information online, as compared to other groups.

### 7.1. Psychological implications

The current study adds to the literature on personality and online self-disclosure, extending findings showing that individuals disclose overall more information on SNSs (i.e., Facebook), and that extraverts are more likely to disclose information in such online environments relative to individuals low on extraversion (Amichai-Hamburger & Vinitzky, 2010; Hew, 2011; Ross et al., 2009; Ryan & Xenos, 2011). However, the current study also extends these findings in a number of ways.

Firstly, prior studies in this literature have only directly compared individuals' online behavior relative to individual differences in personality (Amichai-Hamburger & Vinitzky, 2010; Ross et al., 2009; Ryan & Xenos, 2011), while disregarding the ways that those with different personalities might disclose information in-person as opposed to online. Thus, the current study represents a first attempt to understand the way that personality (extraversion) predicts online information disclosure relative to in-person disclosure. To this end, a more nuanced understanding of the relations between modality of communication, extraversion, and self-disclosure is gained.

Secondly, to the best of our knowledge, no prior published research has examined the relations between self-construal, personality, and modality of communication on self-disclosure. Our findings address this lacuna in the literature, and provide a more detailed understanding of the relations between these variables, and indicate that both self-construal and personality predict the ways that individuals disclose information on SNSs such as Facebook.

Finally, to the extent that the statistically significant findings derived from the current study generally support the theorized directions of relations between self-construal, extraversion, and modality of communication, empirical support is gained for the theoretical notion of viewing self-disclosure on online sites such as Facebook through an individual differences lens. That is, because the same individuals rated both online and in-person self-disclosure, we were uniquely able to rule out most individual differences and look exclusively at the joint relations between modality, extraversion, and self-construal on self-disclosure. The direction of the interactions indicated that individuals with interdependent self-construals (allocentrists) who were also low on extraversion disclosed the least positive and the most audience-relevant information online but not in-person. Thus, these findings tentatively suggested that the SNS (Facebook) environment may be viewed as an environment that stifles individual expression and thereby promotes interdependent behavior, especially among those not inclined to disclose information in the first place.

### 7.2. Educational implications

This research extends existing theory on self-disclosure to the online arena in higher educational institutions and contributes to the knowledge base and understanding about the use of SNSs by college students. The use of SNSs is becoming ubiquitous among university students. The publicly open online social networks provide students with access to more information and experiences than they would get in a closed environment alone. If properly facilitated and framed, such expanded exposures can benefit student learning by creating social connections across boundaries while students collaborate to share ideas, construct identities, build their own learning paths and access existing and new knowledge resources (Chen & Bryer, 2012).

The findings of this study have important implications for the understanding of college students' behaviors and self-disclosure on SNSs. As innovative instructors integrate social media in teaching, they need to be aware of the differences of students'

self-presentation between the online and offline worlds considering both cultural and personality factors. Being aware of the differences and potential privacy consequences, instructors and students can work together to create an open but safe environment for learners to disclose themselves and make connections. Self-construal and personality factors have a strong impact on students' online self-presentation. The findings indicate that students with high allocentrism and low extraversion tend to post the least honest but most audience-relevant information online. With such understanding in mind, instructors can interpret learners' behaviors more accurately and avoid issues, such as marginalizing students or being unfair as one type of students feel more comfortable in the SNSs environment than the other. We hope that this research will be useful to educational practitioners and researchers as they continue to investigate and build a knowledge base about the use of SNSs by college students and effectively help them mitigate potential privacy risks as well as attentively adjust themselves in tune with the increasing informal learning opportunities.

### 7.3. Limitations and directions for future research

There are several limitations that should be acknowledged in this survey research method and sample. One major limitation is the self-selection bias as participants volunteered for the study. Even though we have a large sample size ($N = 463$), the data only include undergraduate students in the department of psychology at one southeastern university in the United States. Thus, it is unclear whether the current findings would generalize to students engaged in other disciplines, or working professionals or adults from other countries. Future research could focus on such varied contexts or samples.

Related to the fact that the sample was somewhat homogeneous is the issue that the range on the cultural, or self-construal, orientation variable (idiocentrism vs. allocentrism) may have been restricted – it may well be expected that a mostly White sample from the southeastern United States would score higher on idiocentrism overall, as evidenced by the high overall mean and standard deviation for the Independence variable in Table 1. However, despite the fact that the sample was restricted in this aspect, statistically significant results were found for the 3-way interaction between self-construal, extraversion, and modality of communication. Hence, it is possible that culture may play a more prominent role in online self-disclosure than even the current findings suggest, given the existence of a 3-way multivariate interaction involving an individual-level variable representing cultural dispositions, even in the presently range-restricted sample. Future research should delve further into this issue, with research from cultures on the interdependent end of the scale to complement the findings from this US sample. Additionally, it could also be interesting to examine the interplay between societal culture, environmental culture as represented by in-person vs. online communication modalities, and culture at the level of individual analysis (e.g., self-construal), to examine how allocentrists/idiocentrists from cultures where different norms regarding individualism and collectivism share information online as opposed to in-person (c.f., Marcus, Le., & Erazo, 2011) for theoretical arguments on the equivalency between self-construal and cultural orientation, and on the interplay between these potential levels of individualism/collectivism.

Finally, future research could also investigate the self-disclosure and self-presentation of instructors on SNSs as they teach and connect with students via a variety of technology tools. Teaching and learning are two sides of the same coin. While research has been conducted on how college students present themselves on Facebook, little has been done on the instructor's presence on SNSs.

Building a rapport with students is traditionally an important element of teaching in face-to-face classrooms. One recent study did support that instructor's self-disclosure via Facebook would enhance instructor's credibility as perceived by undergraduate students (Mazer, Murphy, & Simonds, 2009). However, no research has ever examined the modality of teaching and communication on instructor's self-disclosure and relevant factors that might have an impact on this issue. Do faculty present themselves differently online versus in person? Do students in face-to-face classes get more opportunities to get to know their instructor than those in online classes? What factors would instructors consider to present themselves and connect with their students on SNSs? This is still a missing piece in the literature as whether instructors are expected to share their personal self, professional self or a single cohesive self within the public spaces created through online social media.

### Appendix A. Survey instruments

#### A.1. Self-disclosure (Wheeless and Grotz, 1976, 1977; Wheeless, 1978)

> *Items for in-person self-disclosure are provided. Online self-disclosure items were identical, save for the phrase "online" being substituted for "in person" wherever relevant.*
> When I wish, my self-disclosures in person are always accurate reflections of who I really am (Intent).
> When I express my personal feelings in person, I am always aware of what I am doing and saying (Intent).
> When I reveal my feelings about myself in person, I consciously intend to do so (Intent).
> My statements of my feelings, in person, are usually brief (Amount; reversed).
> I do not often talk about myself in person (Amount; reversed).
> I rarely express my personal beliefs and opinions in person (Amount; reversed).
> My in-person conversations last the least time when I am discussing myself (Amount; reversed).
> I usually disclose negative things about myself in person (Positivity; reversed).
> I usually disclose positive things about myself in person (Positivity).
> On the whole, my disclosures about myself in person are more positive than negative (Positivity).
> In person, I cannot express my feelings when I want to because I do not know myself thoroughly enough (Honesty; reversed).
> I do not always feel completely sincere when I reveal my own feelings, emotions, behaviors, or experiences in person (Honesty; reversed).
> I am honest in my self-disclosures in person (Honesty).
> I intimately disclose who I really am, openly in my in-person conversation (Control).
> Once I get started, I cannot stop expressing myself in person (Control).
> In person, I typically reveal information about myself without intending to (Control).
> My in-person disclosures regarding personal beliefs and opinions are relevant to the interests of my audience (Relevance).
> My in-person messages reveal mostly what I like (Relevance; reversed).

#### A.2. Idiocentrism (Wagner, 1995)

> Only those who depend on themselves get ahead in life.
> To be superior a person must stand alone.
> If you want something done right, you've got to do it yourself.
> What happens to me is my own doing.
> In the long run the only person you can count on is yourself.

A.3. Extraversion (Donellan et al., 2006)

I am the life of the party.
I do not talk a lot (reversed).
I talk to a lot of different people at parties.
I keep in the background in social situations (reversed).

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