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Assertiveness and Anxiety Effects in Traditional and Online Interactions

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ABSTRACT

The present study explored the extent to which self-esteem is a significant predictor of social network use and the level of anxiety and assertiveness participants feel during traditional and online interactions. Using a survey design (N=184), it was found that lower self-esteem was not associated with more intensive social network use, in contrast to the social compensation theory. Self-esteem was a significant negative predictor of social anxiety as well as a positive predictor of assertiveness in traditional and online settings. Higher social anxiety was also associated with lower social assertiveness in both settings. Exploratory results showed that participants who engaged more frequently in online activities also reported significantly higher levels of assertiveness and lower levels of anxiety. These findings suggest that online behaviors reflect different personality characteristics, with self-esteem being an important variable to consider in the exploration of online behaviors and experiences.

Keywords: Anxiety, Assertiveness, Self-Esteem, Social Capital, Social Compensation, Social Networking

INTRODUCTION

Social networking sites such as Facebook provide a number of services to the user in that they can create their own profiles, generate a list of preferred connections, view and access their own list of network contacts and potentially that of other users (Boyd & Ellison, 2007). The use of social network sites represents an important development in social interactions as they are increasingly taking place in virtual space. More and more individuals are using social networks to relate to one another. This also means that how we relate to others and interact with them may increasingly take place online. With the emergence and increased popularity of social networking sites, there has been a substantial increase in peer reviewed articles on the motivations, predictors and consequences of social network use (see Macafee, 2013; Skues, Williams & Wise, 2012), and research interest is rapidly increasing (e.g., Wilson, Gosling, & Graham, 2012). Frequent issues

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of interest include privacy (Taddicken, 2014), self-disclosure (Park, Jin & Jin, 2011), social capital (Lampe, Ellison, & Steinfield, 2008), motivation (Ross et al., 2009), and the personality of users (Ljepava, Orr, Locke & Ross, 2013).

Several researchers have started to investigate how personality factors influence predictors of Facebook use (Amichai-Hamburger & Vinitzky, 2010; Correa, Hinsley, & de Zúñiga, 2010; Ross et al., 2009; Ryan & Xenos, 2011; Wilson, Fornasier, & White, 2010). Some of these studies focused on the variables in the Five Factor Model (McCrae & John, 1992), that is, neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (e.g., Amichai-Hamburger & Vinitzky, 2010; Ross et al., 2009). According to Fleming (2013), extraversion is the most prevalent trait in research of Facebook use. Assertiveness is strongly associated with extraversion. Self-esteem (Ellison et al., 2007; Kalpidou, Costin & Morris, 2011; Mehdizadeh, 2010; Wilson et al., 2010) and social anxiety (Caplan, 2007) are two other psychological constructs of interest.

Another area of interest is the extent to which certain individuals tend to be more socially engaged and have experienced enhanced online social interactions (see Buote, Wood & Pratt, 2009; Forest & Wood, 2012). Although current literature has had a focus on the associations between personality traits and Facebook use, few studies have examined the simultaneous effect of multiple variables (Skues et al., 2012). Several researchers have found that Facebook is used to maintain existing offline relationships (Ellison, Vitak, Gray & Lampe, 2014). Similarities and differences between online and offline friendships were explored in the study of Buote et al. (2009). Aside from this research, we did not identify any other studies to date that have examined the relationship of different personality traits such as anxiety and assertiveness in both online and traditional social interactions.

We wish to contribute to the research by addressing two areas. First, this study examines whether specific user differences play a role in social interactions in both online and traditional settings, thus determining whether social interactions are dependent on context. Second, we intend to investigate the role of selected user differences in terms of the use of and activities on the social network site Facebook.

Personality and Social Networking

Various different personality traits have been researched in relation to social networking. We will focus on the following three: self-esteem, social anxiety and assertiveness.

Self-esteem can be defined as the “desire to believe that one is worthy” (Crocker & Park, 2004, pg. 392). It captures a person’s overall self-evaluation of their worth (Weiten, 2004). Implicit self-esteem refers to the unconscious self-evaluation that occurs automatically; explicit self-esteem refers to the conscious, reflective self-evaluation (Weiten, 2004). Both implicit and explicit aspects of self-esteem exert critical influence over how people present themselves to others (Baumeister, 1982). Generally individuals have a need to maintain or raise their self-esteem (Krämer & Winter, 2008) and those with lower self-esteem have a desire to compensate for their lack of self-esteem (Tice, 1993).

There is some evidence that self-esteem also plays a role in terms of the building or maintaining of social capital. Social capital represents the resources that are accumulated through relationships among people (Coleman, 1988), including social network connections (e.g., Johnston et al., 2013; Steinfield, Ellison & Lampe, 2008). Social capital has been differentiated in terms of the form and function they take. For example, ‘maintained social capital’ represents the ability to maintain valuable connections through life changes (Ellison et al., 2007). Bridging social capital can be defined as the connections that exist between individuals which give them useful

information or access to different perspectives, although this may not necessarily include emotional support (Granovetter, 1983). For example, Ellison et al. (2007) examined the relationship between Facebook use and the formation and maintenance of social capital. Facebook use was found to compensate for low self-esteem by enabling users to gain greater benefits associated with social relationships, therefore building social capital (Ellison et al., 2007).

A variety of studies link self-esteem and social capital in online settings. Lampe et al. (2008) reported that those with lower self-esteem gained more bridging social capital from Facebook use than participants with higher self-esteem. What is more, self-esteem was found to act as a moderator between Facebook use intensity and bridging social capital. They concluded that the affordances of the social networking site reduced barriers to forming networks, a source of bridging social capital (Lampe et al., 2008). This appears to be of particular benefit to individuals with lower self-esteem. In addition, these individuals may be able to find it easier to access bonding social capital via social networking and thus benefit through the emotional support available online (see Johnston et al., 2013).

The research on social capital is also related to other work on how Facebook has been used to build social networks. The social compensation approach proposes that individuals with low self-esteem can compensate for a lack of social support by engaging in online activities (Lee et al., 2012; see also Desjarlais & Willoughby, 2010; Zywicki & Danowski, 2008). This approach suggests that there is a relationship between an individual's self-worth and their activities on social networks (see also Valkenburg, Schouten & Peter, 2005; Zywicki & Danowski, 2008). Using this as a basis for their study, Lee, Moore and Park (2012) examined the effects of self-esteem on 'Facebook friending,' whereby users select others and request their permission to add them as friends. If the users approve the request, the new friend is then allowed access to the requester's profile (see Tong et al., 2008). Lee et al. (2012) noted that those with lower self-esteem engaged in more Facebook 'friending'. This supported the social compensation hypothesis and led Lee et al. (2012) to propose that individuals with lower self-esteem in their study engaged in 'social compensation friending.' That is, they used the feature of 'friending' to increase their perception of self-worth. Mehdizadeh (2010) also found that lower self-esteem was associated with greater online activity and self-promotion. Individuals with lower self-esteem have also been found to strive for popularity online, when they are less popular offline (Zywicki & Danowski, 2008). In addition, Facebook use has also been found to lead to more enhanced self-esteem rather than diminishing it (Gonzales & Hancock, 2011). Based on these findings, lower self-esteem may be associated with increased online engagement as they may feel more comfortable to express themselves in this way (see also Amichai-Hamburger, Wainapel, & Fox, 2002).

Further personality traits of note include social anxiety and assertiveness. In both online and traditional social interactions, people have been found to engage in strategic self-presentation in order to create desirable impressions of themselves (Mehdizadeh, 2010; Schlenker, 1980). Indeed, Clark and Wells (1995) propose that individuals create an impression of themselves as they might be viewed by an observer. When individuals lack confidence but wish to present a positive self-image, they are also more likely to experience social anxiety (Schlenker & Leary, 1982). In addition to this, social anxiety may arise when people have to face encounters with others that may potentially lead to conflict (Schlenker & Leary, 1982). Instead, they may prefer interactions that are less threatening to their self-perception (also described as "relatively safe bets", see Leary, 1983). This may explain why Valkenburg and Peter (2007) noted that social anxiety related negatively with online communication.

The extent to which individuals experience social anxiety may therefore depend on other extraneous variables, including their skills and the relationship of the communicating partners. When individuals feel close to the person they are communicating with, they are also less likely

to experience anxiety (Gross, Juvonen, & Gable, 2002). This is in line with the use of the Internet for intimate self-disclosure by more socially anxious respondents (Valkenburg & Peter, 2007). The Internet may help more socially anxious individuals to develop intimate relationships online and thus help compensate for the fewer or smaller (offline) networks available to them (Lee, 2009; Kraut et al., 2002). This is in accordance with other work that suggests the Internet could enhance or diminish well-being, depending on whether it removes or creates opportunities for contact with significant others (Kraut et al., 1998). However, other findings suggest no significant differences in terms of Internet use amongst individuals with high and low social anxiety (see Scealy, Phillips & Stevenson, 2002).

In terms of skills, the social anxiety experienced in communications may affect the extent to which individuals feel they can effectively employ self-presentation skills in face-to-face or online settings (e.g., Noonan, 1998). Lower levels of self-presentation skills are often associated with a preference for online (rather than face-to-face) social interactions (Caplan, 2005). This may also result in more socially anxious individuals forming a preference for online over traditional social interactions (Caplan, 2007). Perceived communication skills may also play a role. Valkenburg and Peter (2007) observed that participants with social anxiety communicated online less often than those without. Yet, at the same time, those who were socially anxious perceived the Internet as being more valuable for intimate self-disclosure (Valkenburg & Peter, 2007). This finding therefore supports the “poor get richer” social compensation hypothesis (see also Lee et al., 2012) and previous research regarding social anxiety (Caplan, 2005, 2007). This suggests that both social enhancement and compensation can influence the communication of more socially anxious individuals.

Social assertiveness is important here as it shapes the extent to which individuals will take an active rather than passive role in asserting themselves, expressing how they truly think and feel (Fensterheim, 1971). Lower levels of social assertiveness are moreover associated with higher social anxiety (Coyne, Seigne, & Randall, 2000). Assertiveness is one personality trait that people are likely to emphasize when online (Papacharissi & Rubin, 2000). Individuals that are more assertive have been found to be more likely users of online services such as Internet banking (Alsajjan & Dennis, 2010). Assertiveness is also associated with extraversion (Lynman & Widiger, 2001). Those with higher extraversion had a significantly higher number of friends on Facebook than those who had lower extraversion (Amichai-Hamburger & Vinitzky, 2010; but see trends in Ross et al., 2009).

Research Gap and Hypotheses

There has been little research on social anxiety in relation to online interactions (but see Rauch et al., 2014; Desjarlais & Willoughby, 2010; Caplan, 2005, 2007). The existing research suggests that those with lower self-esteem may also exhibit greater social anxiety (Leary, 1983). At the same time, individuals with lower self-esteem may experience greater social anxiety in communications that are face-to-face, as opposed to online. Finally, we are not aware of any research to date that has examined social assertiveness per se (instead of extraversion overall, see Fleming, 2013) in relation to interactions on social networks such as Facebook.

We therefore based the following hypotheses on past literature regarding the role of self-esteem, social anxiety and social assertiveness in social interactions. Our null hypothesis is that our effects are not subject to the social setting (traditional or online). At the same time, we acknowledge that some differences may arise when individuals with lower self-esteem assess their social anxiety in online vs. face-to-face interactions. We will focus on the use of Facebook as this is a major social network with 1.19 billion active monthly users (Facebook website, 2013).

Please note that our hypotheses consider two different goals. The focus of the first set of hypotheses is to explore the influence of self-esteem on social network use, as well as anxiety and assertiveness in traditional (face-to-face) and online social interactions (H1 to H3). The second set of hypotheses specifically considers the influence of anxiety on assertiveness in BOTH settings (H4) but also the role of these personality characteristics on shaping the frequency with which participants engage in different social network activities (H5).

H1: Self-esteem is a negative predictor of Facebook intensity (use). That is, we expect that higher self-esteem is associated with less intensive Facebook use.

H2a/b: Self-esteem is a negative predictor of anxiety in traditional and online social settings (on Facebook). Higher self-esteem is associated with lower anxiety.

H3a/b: Self-esteem is a positive predictor of assertiveness in traditional and online social settings (on Facebook). Higher self-esteem is associated with higher assertiveness in both settings.

H4a/b: Higher levels of social anxiety are related to lower levels of social assertiveness in traditional and online social interactions (on Facebook).

We added an exploratory final hypothesis. H5: Individuals who participated more frequently in various online activities (on Facebook) were also more assertive compared to individuals who were less engaged in such activities online.

METHODS

Participants

A total of 221 participants (aged 18-64) were recruited for the experiment with the use of an online advertisement that was posted on Facebook. We excluded all those respondents who did not complete the entire survey (n=29) or reported having an anxiety (n=8). As a result, the final sample included 184 individuals, made up of 123 female (67%) and 60 male participants (32.6%; 1 missing case). Our 184 participants were on average 25 years old (MN=25.69; SD=8.69; 2 missing values). Most were around 20 years old (most frequent age given by participants).

Procedure

Prior to data collection, the study materials were submitted to the Chair of Ethics at the Faculty of Health & Life Sciences Undergraduate Ethics Committee (Winter 2013). As soon as approval had been obtained for the study, participants were invited to respond via a Facebook announcement (Spring 2014). Once the participant had clicked on the link that was included in the Facebook advert, they were directed to the online questionnaire (SurveyMonkey). On the first page, the participants were initially requested to read the information sheet and complete the consent form before accessing the survey. Participants were then asked to complete a questionnaire on their use of social networks, self-esteem, anxiety and assertiveness. All participants were allocated an anonymous participant number and in order to ensure confidentiality. No IP addresses, names or emails were collected.

Measures

The survey included a variety of measures assessing personality, as well as the use of, and the activities participated in on the social network site (Facebook). Where only two items were

used, we report the correlation coefficient. For all other measures with more than three items, we report the coefficient alpha.

Assertiveness

Two items from the Adult Self-Expression Scale were used (Gay, Hollandsworth & Galassi, 1975) to assess assertiveness. The two items were: (1) "Do you keep your opinions to yourself?" and (2) "Do you find it difficult to ask a friend to do a favor for you?" There were five response options: (1) "Never/rarely", (2) "Seldom", (3) "Sometimes", (4) "Usually", and (5) "Almost always/always". Both items were reverse-scored so that a higher score responded to greater assertiveness ($r=.399$, $p<.001$; $MN=3.21$, $SD=.81$, $N=184$). We generated very similar items to assess assertiveness on Facebook. These two items asked participants: (1) "Do you freely volunteer information or opinions openly on Facebook?" (2) "Do you find it difficult to ask a friend to do a favor for you via Facebook message?" (reverse-scored). The same five response options applied ($r=.212$, $p=.004$, $MN=3.18$, $SD=.85$, $N=182$).

Anxiety

We used two items from the Social Interaction Anxiety Scale (Mattick, Peters, & Clarke, 1989). The items asking about anxiety more generally were as follows: (1) "Do you feel at ease meeting people at parties?" (reverse-scored) and (2) "Do you worry about expressing yourself in case of appearing awkward?" The response options we used in this study ranged from (1) "Never/rarely" to (5) "Almost always/always". This ensured that we captured the frequency with which individuals experienced anxiety and created greater consistency between the items we presented to assess assertiveness. We again created a mean-centered composite so a higher score responded to greater anxiety ($r=.437$, $p<.001$; $MN=2.68$, $SD=.87$, $N=184$).

In order to measure anxiety on Facebook, we presented two similar items but included the reference "on Facebook" to emphasize the online context. These were (1) "I'm at ease meeting/making friends with people on Facebook (reverse-coded)" and (2) "I worry about expressing myself on Facebook in case of appearing awkward." The same response options applied as before: we also created a composite again with higher scores indicative of greater anxiety ($r=.176$, $p=.018$; $MN=2.90$, $SD=.88$, $N=182$).

Facebook Intensity

We used 5 out of 28 items from the Facebook use questionnaire (Ross et al., 2009). These items assessed the basic use of Facebook, frequency of use, and attitudes associated with Facebook use. One item was added by the authors. An example item was: "How often do you comment on other people's photos?" The response options ranged from (1) "Never" to (5) "Very often". The scale had adequate reliability ($\alpha=.80$, $MN=2.85$, $SD=.65$).

Self-Esteem

We selected five of the ten items from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). An example item included: "On the whole, I am satisfied with myself." (2) "I feel that I have a number of good qualities." All items included a five-point response scale ranging from (1) "Strongly disagree" to (5) "Strongly agree". We created a mean-centered composite so a higher score responded to higher self-esteem. The scale had adequate reliability ($\alpha=.83$) and descriptive statistics suggest a higher overall self-esteem in the sample ($MN=3.77$, $SD=.64$).

General Facebook Use

We used the questionnaire by Ross et al. (2009) to capture how our participants used Facebook and other social networks. We asked several questions. To assess *time investment*: “On average, approximately how many minutes per day do you spend on Facebook?” (fb1; MN=3.50, SD=1.37). The response options were: (1) “Never” (n=31, 16.8%), (2) “Rarely” (n=81, 44.0%), (3) “Sometimes” (n=46, 25%), (4) “Often” (n=19, n=10.3) and (5) “Very often” (n=7, 3.8%).

To assess *multiple network use*: “How many other social networks do you belong to?” (fb2; MN=3.78, SD=1.54; n=183, one missing value). The response options were: (1) “0 – no other networks” (n=19, 10.3%), (2) “1-2 networks” (n=37, 20.1%), (3) “3-4 networks” (n=16, 8.7%), (4) “5-6 networks” (n=2, 1.1%) and (5) “6+ networks” (n=107, 58.2%). To assess *everyday use*, we asked whether “Facebook is part of my everyday activity” (fb3; MN=3.90, SD=1.04; n=183, one missing value). The response options were: (1) “Strongly disagree” (n=7, 3.8%), (2) “Disagree” (n=14, 7.6%), (3) “Neutral” (n=26, 14.1%), (4) “Agree” (n=80, 43.5%) and (5) “Strongly agree” (n=56, 30.4%).

To get a sense of identification of the users with the *online social community*, we asked the following: “I feel I am part of a community on Facebook” (fb4; MN=3.03, SD=1.06; n=183, one missing value). The response options were: (1) “Strongly disagree” (n=15, 8.2%), (2) “Disagree” (n=41, 22.3%), (3) “Neutral” (n=66, 35.9%), (4) “Agree” (n=46, 25.0%) and (5) “Strongly agree” (n=15, 8.23%).

Demographics

These variables include age and gender. We also asked participants if they had a social or other anxiety disorder, just in case our participants had not read the exclusion criteria carefully. We identified 8 individuals who reported having a social or another anxiety disorder. These cases were excluded from the analysis as their level of anxiety may be significantly more elevated than those of other participants in all forms of social interactions. This may create outliers and ceiling effects, thus skewing the results.

RESULTS

Descriptive Results

We described the psychometric and descriptive results in the Measures section. The correlations between most variables were small to moderate but often significant at $p < .01$. A number of correlations are worth mentioning briefly. General anxiety was positively correlated with online anxiety ($r = .343, p < .001$). It was also negatively associated with general assertiveness ($r = -.422, p < .001$) as well as online assertiveness ($r = -.337, p < .001$). Self-esteem was positively associated with general assertiveness ($r = .266, p < .001$) as well as marginally with online assertiveness ($r = .135, p = .069$), but negatively with both general ($r = -.401, p < .001$) and online anxiety ($r = -.249, p = .001$). Everyday use was positively correlated with online assertiveness ($r = .357, p < .001$). The findings suggest that while general and online measures for social anxiety and assertiveness were correlated, the measures were not correlated so highly as to suggest a significant overlap of measures.

Role of Self-Esteem (H1 to H3a/b)

We first examined if our outcome variables were influenced by gender or age. Where appropriate, we included them in the first step of the analysis.

Self-Esteem as a Predictor of Facebook Use (Intensity)

The first hypothesis (H1) predicted that lower levels of self-esteem would predict higher levels of Facebook use. Self-esteem was not a significant predictor of Facebook intensity ($b = .061$, $\beta = .060$, $t = .804$, $p = .422$). This hypothesis was therefore not supported.

Self-Esteem as a Predictor of Anxiety

The second hypothesis (H2a/b) focused on the role of self-esteem in relation to anxiety. Regression results indicate self-esteem was a significant negative predictor of anxiety in traditional social interactions ($b = -.544$, $\beta = -.401$, $t = -5.902$, $p < .001$). In addition, self-esteem was a significant negative predictor of anxiety on Facebook ($b = -.337$, $\beta = -.249$, $t = -3.456$, $p = .001$). In other words, self-esteem shaped self-reported anxiety in traditional and online settings. As a result, we found support for both hypotheses 2a and 2b.

Self-Esteem as a Predictor of Assertiveness

The third hypothesis (H3a/b) focused on the role of self-esteem in relation to assertiveness. Gender and self-esteem significantly predicted assertiveness ($R^2 = .085$, $R^2_{adj} = .075$, $F(2, 180) = 8.320$, $p < .001$). Self-esteem was a significant negative predictor ($b = .290$, $\beta = .230$, $t = 3.178$, $p = .002$) of general assertiveness. In the next analysis on assertiveness on Facebook, both gender and age were marginally significant predictors ($R^2 = .033$, $R^2_{adj} = .022$, $F(2, 176) = 3.254$, $p = .052$). Model fit improved when including self-esteem ($R^2 = .053$, $R^2_{adj} = .037$, $F(3, 175) = 3.254$, $p = .023$). Self-esteem was a marginally significant positive predictor of assertiveness on Facebook ($b = .200$, $\beta = .145$, $t = 1.909$, $p = .058$). These findings support Hypotheses 3a and 3b. The results suggest that self-esteem did not only influence anxiety, but also the level of assertiveness participants reported in both traditional and online interactions (the two constructs were moderately and negatively correlated, see Table 1).

Anxiety Influences Assertiveness in Different Social Settings (H4)

Anxiety Group Differences in Relation to Assertiveness in Traditional Interactions

The first part of the second hypothesis (H4a) stated that higher levels of social anxiety in traditional social interactions are related to lower levels of assertiveness in traditional social interactions. For this purpose, we used the mean value to create two anxiety categories (participants scoring above the mean were categorized as high on social anxiety while participants scoring below were placed in the low anxiety group). H4a was tested with ANCOVA as gender was a significant covariate ($F(1, 179) = 4.125$, $p = .044$, $\eta^2_p = .023$). We observed a significant group difference ($F(1, 179) = 22.751$, $p < .001$, $\eta^2_p = .113$). Individuals who were categorized as having low anxiety also reported higher assertiveness levels ($MN = 3.47$, $SD = .71$, $n = 104$) than those who were in the high anxiety group ($MN = 2.90$, $SD = .83$, $n = 78$). This supports hypothesis 4a.

Table 1. Correlations between variables

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(12) General assertiveness	1										
(13) Assertiveness on Facebook	.242**	1									
(14) General anxiety	-.422**	-.220**	1								
(15) Anxiety on Facebook	-.337**	-.414**	.343**	1							
(16) Facebook intensity	.133 †	.614**	-.153*	-.376**	1						
(17) Self-esteem	.266**	.135 †	-.401**	-.249**	.032	1					
(18) Time investment (fb1)	-.028	.237**	-.048	-.171*	.358**	-.061	1				
(19) Multiple network use (fb2)	.176*	.053	-.063	-.108	.030	.077	-.163*	1			
(20) Everyday use (fb3)	-.112	.357**	.011	-.098	.437**	-.017	.538**	-.063	1		
(21) Online community (fb4)	.063	.439**	-.157*	-.340**	.498**	.042	.260**	.053	.482**	1	
(22) Age	.015	.135 †	-.029	-.088	.062	.217**	-.255**	.283**	-.124 †	.100	1

Note. N=184 (age n=182). † $p < .10$, * $p < .05$, ** $p < .01$. The variables (7) to (10) were all part of the General Facebook use assessment.

Anxiety Group Differences in Relation to Assertiveness on Facebook

Next, we considered the extent to which high or low social anxiety on Facebook is associated with lower vs. higher levels of social assertiveness on Facebook (H4b). We used the same anxiety categories used in the analysis of H4a. This hypothesis was tested with ANCOVA as gender was a significant covariate ($F(1,177)=3.969, p=.048$, partial $\eta^2=.022$). We observed a significant group difference ($F(1,177)=14.744, p<.001, \eta_p^2=.077$). Individuals who were categorized as having low anxiety also reported higher assertiveness scores (MN=3.43, SD=.80, n=76) than those who were in the high anxiety group (MN=2.98, SD=.82, n=102). This supports hypothesis 4b.

The overall trend in both online and traditional interaction settings was therefore very consistent. Individuals who experienced high anxiety were much less assertive in social interactions, regardless of whether or not these took place online on Facebook or in more traditional settings. The anxiety on Facebook may also be reflected by the extent to which participants spend time online. Some support comes from the correlations reported in Table 1. Facebook intensity was significantly higher when anxiety on Facebook was lower ($r=-.376, p<.001$). Indeed, greater assertiveness on Facebook was associated with less anxiety ($r=-.414, p<.001$). The more assertive our participants were on Facebook, the more they also tended to use it ($r=-.614, p<.001$).

Table 2. Assertiveness levels of respondents and frequency of online activities

	Activity Frequency and Assertiveness Levels			ANOVA Results
	Never/ Rarely	Sometimes	Often/ Very Often	
How often do you				
Comment on other people's photos?	2.66 (n=74)	3.35 (n=69)	3.84 (n=41)	$F(2,179)=38.268, p<.001, \eta^2_p=.300$
Post pictures?	2.88 (n=84)	3.29 (n=61)	3.69 (n=38)	$F(2,178)=14.169, p<.001, \eta^2_p=.137$
Post on people's walls?	2.88 (n=101)	3.50 (n=63)	3.67 (n=20)	$F(2,179)=16.599, p<.001, \eta^2_p=.156$
Send private messages?	2.91 (n=17)	2.95 (n=50)	3.31 (n=116)	$F(2,178)=4.278, p=.015, \eta^2_p=.046$
Change your status?	2.87 (n=112)	3.55 (n=46)	3.88 (n=26)	$F(2,179)=25.914, p<.001, \eta^2_p=.225$
Comment on another person's status update?	2.74 (n=72)	3.24 (n=65)	3.78 (n=47)	$F(2,179)=27.278, p<.001, \eta^2_p=.236$

Note. Columns 2 to 4 include the assertiveness means for each of the three response categories for each of the Facebook activities.

Frequency and Type of Online Activity in Relation to Assertiveness (Exploratory H5)

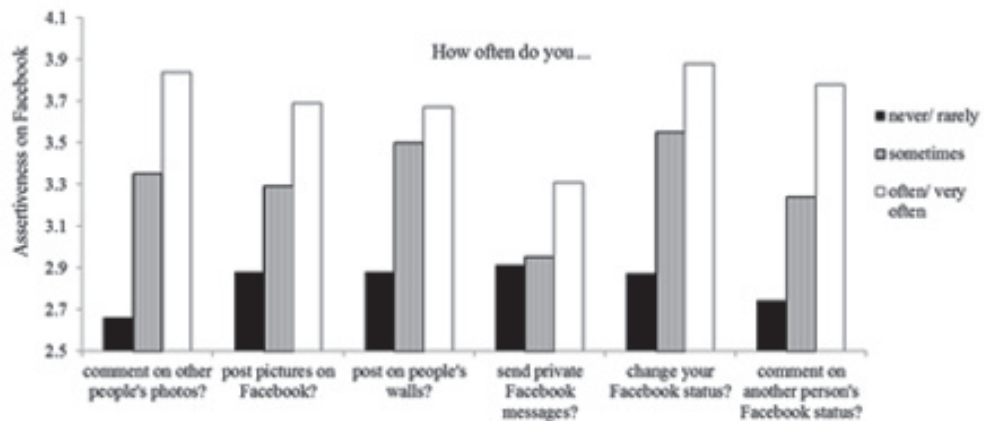
We had posited that the frequency with which individuals engage in activities and the time spent online are associated with different levels of assertiveness. These propositions were tested in several different analyses.

Differences in Online Activity as Indicator of Assertiveness

We examined the extent to which online activities amongst our participants were indicative of higher or lower assertiveness. We had asked participants to tell us how often they (a) commented on other people's photos, (b) posted pictures, (c) posted on other people's walls, (d) send private messages, (e) changed their status, and (f) commented on other peoples' status updates. The items each featured five response options ranging from "never" to "very often". We combined several response options due to small group cell sizes (in some instances, $n<10$). We combined the participant responses "never" and "rarely" into one response category as well as the response options "often" and "very often". This resulted in three categories that captured the frequency with which participants engaged in certain Facebook activities (see Table 2 for more details).

In order to assess the extent to which Facebook activity was associated with different levels of assertiveness, we conducted several analyses of variance. We conducted separate analyses of variance for each categorical variable that captured one particular Facebook activity (e.g., posting pictures on Facebook). The outcome variable was the level of assertiveness (we recognize that in this analysis, causality may be somewhat unclear: More online activity may make a participant more assertive over time, while assertiveness may also influence online activity). All analyses were significant ($p<.01$) and the effect sizes ranged from small to large (partial eta squared ranged from .04 to .30). Table 2 summarizes the results of all analyses. Participants who selected the response option "Never/rarely" always had lower assertiveness scores than partici-

Figure 1. Online activity as a result of level of assertiveness



pants who selected the response option “Often/very often” in terms of various online activities. This suggests that those more active or frequent users of the online features and options tended to be more assertive. Please note that we observed similar but reversed online engagement trends (p -values ranged from $p < .001$ to $p = .070$) when we computed the same analyses with online anxiety. Those who never or rarely engaged in specific online behaviors also tended to have significantly higher social anxiety.

Figure 1 demonstrates how assertiveness level relates to specific the frequency with which participants engaged in certain online activities. These results suggest that individuals who are less assertive (and more anxious) are unlikely to utilize social media such as Facebook as suggested by the social compensation theory. Instead of using this forum to access support, these individuals appear to refrain from doing so in a similar fashion as they might do in traditional social interactions. We also ran the analysis in regard to self-esteem. The only important group difference noted was in terms of sending private messages ($F(2,180) = 3.131, p = .046; \eta^2_p = .034$). Individuals who had higher self-esteem reported that they never or rarely ever send private messages ($MN = 4.05, SD = .58, n = 17$), compared to individuals who sometimes send messages ($MN = 3.62, SD = .78, n = 50$), or send messages often or very often ($MN = 3.81, SD = .57, n = 116$). However, the group sizes were unequally distributed. As a result, the support for a social compensation effect was possibly circumstantial.

DISCUSSION

The overall goal of our paper was to examine the relationship between personality traits for traditional interactions and interactions taking place online via social networking sites. We focused specifically on self-esteem and social networking use as well as the role of self-esteem as a predictor of anxiety in traditional and online settings. In addition, we examined how social anxiety is related to assertiveness in traditional and online interactions.

Our first hypothesis proposed that self-esteem is a positive predictor of online network use (intensity). This hypothesis was based on several studies that provided support for the suggestion of social compensation and beneficial enhancement effects for individuals with lower self-esteem in online settings (e.g., Gonzales & Hancock, 2011; Lee et al., 2012; Zywica & Danovski, 2008).

Our findings did not support the hypothesis in this study, as self-esteem was not found to be a significant predictor of Facebook use intensity. Indeed, the regression results match the absence of a significant correlation between self-esteem and Facebook intensity. Although these results did not support our hypotheses, our results are not entirely surprising. Not all studies observe a significant association between self-esteem and Facebook use (Kalpidou et al., 2011; Harman, Hansen, Cochran & Linsey, 2005) or self-representation (Krämer & Winter, 2008). This does not provide support for the social compensation approach (Kraut et al., 2002).

The degree to which self-esteem related to social anxiety in traditional and online interactions was also of interest. Examining this relationship is important as it might explain why some evidence suggests individuals with lower self-esteem engage more in online activities in order to compensate for having a less extensive traditional social network (e.g., Lee et al., 2012, Zywicki & Danowski, 2008), whilst other researchers do not find support for this effect (e.g., Kalpidou et al., 2011; Harman et al., 2005). Social anxiety might influence self-presentation concerns and increase self-awareness (e.g., Duval & Wickland, 1972; Walther, 1996), leading to less rather than more participation online. Our analyses showed that self-esteem was a significant negative predictor of anxiety in traditional social interactions and anxiety on Facebook, supporting hypothesis 2a and 2b. Regardless of context, self-esteem influenced the level of anxiety that participants felt in social interactions with others in both traditional (see Leary, 1983) and online settings.

These findings might explain some of the inconsistencies observed in relation to self-esteem and online behavior. The lack of support for a relationship between self-esteem and Facebook use (intensity) might be subject to the level of social anxiety that individuals experience in social interactions. Both general and online anxiety scales were negatively correlated with Facebook use (intensity) in our dataset. One alternative hypothesis is that more time spent online would increase the objective self-awareness amongst those who have lower self-esteem, subsequently leading to less rather than more engagement. This might explain why we did not obtain any significant findings for self-esteem; those with lower self-esteem who also have higher anxiety may be more careful about how they utilize social network options to contact others in order to maintain a positive self-concept. Other research has already examined the role of social anxiety (Desjarlais & Willoughby, 2010), this work has focused on moderation of the relationship between friendship quality and computer use with friends, or for the purpose of online chatting. Due to the lack of a relationship between self-esteem and Facebook use, we did not have a basis to test moderation but future work should consider the role of social anxiety as a moderator in this relationship.

In addition to anxiety, assertiveness was also a variable of interest in our study. Based on evidence linking lower social assertiveness to higher social anxiety (Fensterheim, 1971; Coyne et al., 2000) and higher assertiveness to greater engagement in activities (Alsajjan & Dennis, 2010; Papacharisi & Rubin, 2000), we proposed that higher self-esteem is linked to higher social assertiveness in both traditional and online settings. This hypothesis is an extension of the previous hypothesis on higher self-esteem and lower anxiety. In line with our previous hypotheses, we observed that higher self-esteem predicted higher assertiveness in both traditional and online settings, confirming previous research. The last hypothesis proposed that higher social anxiety was related to lower social assertiveness. Group difference analysis provided support for this relationship in both traditional and online settings (hypotheses 4a and 4b). Based on the self-presentational model of anxiety, the lower social assertiveness shown by those with higher social anxiety in social interactions could be a result of the individual having the desire to present a positive self-presentation alongside a lack of self-presentational confidence (Schlenker & Leary, 1982).

The results for hypotheses 2 to 3 support the proposition that self-esteem influences the experience of individuals (in terms of social anxiety and assertiveness) in both traditional and online social interactions. While this shows some consistency for the effects of self-esteem in both settings, we did notice slightly lower regression coefficients obtained for both anxiety and assertiveness in online settings compared to more traditional social interactions.

Differences in online activity in relation to assertiveness and anxiety were examined in the final exploratory analysis, similar to the approach by Tazghini and Siedlecki (2013) who examined specific types of Facebook activities in relation to self-esteem. We observed that patterns of online activity (e.g., in terms of the frequency of comments, pictures, posts, private messages, status updates and status comments being posted) were also associated with different levels of assertiveness. These results were also almost identical to those obtained with anxiety, which correlated negatively with assertiveness. Participants who do not engage in behaviors that would help them obtain social support and potentially access social bonding capital may therefore also experience higher social anxiety and lower assertiveness in social interactions. In other words, individuals who engaged in online activities more often were also less anxious and more assertive. This means our findings do not provide support for the idea of social compensation efforts being employed by individuals with lower self-esteem in online settings (as proposed by Kraut et al., 2002). In other words, our results do not appear to support the suggestion that they are necessarily able to access and build more social capital online (in contrast to Steinfield et al., 2008). Self-esteem had consistent relationships with anxiety in both contexts (traditional and online), so the affordances available online may not be sufficient to overcome the problems of both higher anxiety and lower assertiveness amongst individuals with lower self-esteem.

Several limitations should be noted before we draw our final conclusions and outline future areas of research. First, we did not utilize the full questionnaire on Facebook intensity, assertiveness or anxiety. This decision was taken to keep the questionnaire to a reasonable length for participants and reduce cognitive load and potential disengagement with the study. Nevertheless, some additional information might have been useful to consider in the analysis. For example, it would have been interesting to measure the number of Facebook friends that participants have against the number of friends they have in traditional settings. In addition, the quality of relationships (e.g., so-called 'friendship quality', see Desjarlais & Willoughby, 2010) might have played a potential role as this may have influenced the degree to which participants would use social networks and experience anxiety in social interactions. Sampling issues could also have played a role. Our participants tended to report a relatively high average self-esteem. This may have been a sampling effect, although past research has utilized similar samples of a similar age (e.g., Tazghini & Siedlecki, 2013). However, our self-esteem scale performed well in psychometric terms and correlated negatively with anxiety and positively with assertiveness, as expected. Accordingly, the results cannot be merely explained because of sampling efficacy.

We can summarize the results of this study as follows. Our findings demonstrate how social interactions function in both online and traditional settings. It is not very often that research examines how social interactions function both in online and traditional settings (Buote et al., 2009). In addition, no research to date has, examined assertiveness as a variable in relation to Facebook use, as far as we are aware (although assertiveness had previously been found to influence Internet use, see Valkenburg & Peter, 2007). Our results suggest that self-esteem is a negative predictor of social anxiety and assertiveness in both traditional and online settings. The regression coefficients suggest that these relationships are equally important and of similar strength in both contexts. In addition, low and high social anxiety had similar effects on assertiveness in both social media and traditional settings. The frequency with which participants would utilize social media options to interact with others also differed significantly: Lower levels of

assertiveness online were associated with less Facebook activity (posting, changing updates, and responding to updates).

Future research may wish to explore the following areas. First, we suggest that potential moderators such as anxiety might influence the relationship between self-esteem and online behavior in line with the social compensation hypothesis (Kraut et al., 2002). Second, individuals' attempts to gain more emotional support via social bonding capital (see Johnston et al., 2013) from online contacts on social networking sites may depend on the number of close personal ties in one's everyday life. Third, research suggests that self-presentation also plays a role in online behaviors and interactions (Seidman, 2013). Self-presentation can be defined as the efforts dedicated by individuals to control how they are perceived by others (Schlenker, 1980). Traditional and face-to-face interactions are often shaped by cues that cannot be influenced by the individual, including their gender, age, ethnicity and attractiveness. However, individuals can exert more control over how they present themselves in online settings. The degree to which individuals with lower self-esteem use impression management strategies (see work by Tong et al., 2008) when interacting with others online may also influence the extent to which self-esteem will influence their use of and activities on social networking sites. Our results suggest that assertiveness is in part a function of the engagement with others and raises the question of reverse causality: Are we more assertive as a function of our personality, or because of the interactions we have with others in traditional or online interactions? Future research may wish to examine this question but also consider the consequences of high anxiety and low assertiveness in relation to a variety of topics, such as online help seeking or problematic Internet use.

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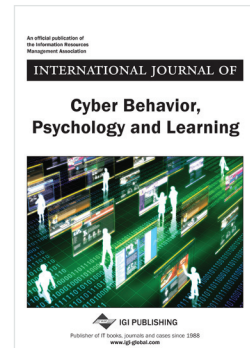
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