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Facebook Frets: The Role of Social Media Use in Predicting Social and Facebook-Specific Anxiety

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Abstract

Theory suggests that Facebook users may experience anxiety due to accessibility of their self-presentations to their entire networks. This project examines the impact of Facebook use on general social anxiety and Facebook-specific anxiety. Predictors we consider include the intensity of Facebook use, role conflict experienced during Facebook use, self-monitoring activities of the user, and religiosity of the user. Findings indicate that Facebook may, indeed, be increasing anxiety. Role conflict and religiosity can also increase Facebook-specific anxiety. Self-monitoring decreases Facebook-specific anxiety but increases general social anxiety. These findings suggest that, under certain circumstances, Facebook use may lead to heightened anxiety.

Keywords: Facebook, Anxiety, Social Network, Self-monitoring, Role Conflict

Facebook Frets: The Role of Social Media Use in Predicting Social and Facebook-Specific Anxiety

Facebook's entry into the daily lives of college students is palpable (Palfrey and Gasser, 2008). Facebook claimed 1.23 billion users in December 2013 (Facebook Newsroom). Facebook specifically, and the Internet in general, have demonstrated impacts both great and small on users' social lives (Boyd 2004, 2008; Turkle, 1997). The sheer volume of users warrants research, and the astounding growth rate and continued popularity of the site has justifiably garnered plenty of attention from scholars, many of whom have focused on identity and social life (Boyd, 2004; Campbell, et al., 2006; Choi, 2006; Ellison et al., 2007; Garton et al., 1997; Lenhart and Madden, 2007; Minar and Hedlund, 2001; Wellman, 2002; Wellman, Boase, and Chen, 2002; Wellman and Gulia, 1999). Despite a growing number of studies of online communities, potential areas of research continue to emerge.

The first area in research on online life that we wish to explore is *anxiety* as a potential negative consequence of use. Facebook users, like most humans, desire social acceptance (Farquhar, 2008). Humans pursue social acceptance by presenting themselves in what they believe to be the best light in all situations (Goffman, 1959; 1969). In *offline* scenarios, this means that when an individual enters a room, she examines the social players, the context, and her goals. All of these help her determine the best course of action (Goffman, 1959). In an *online* scenario, however, the Facebook user might adjust the photos she uploads, the comments she makes on others' photos, or her status update in an effort to please a social group (Farquhar & Davidson, 2012). In both cases, the internal process is the same as that first presented by Mead (1932, 1936). However, a problem arises for Facebook users that does not typically happen in offline settings. Simply put, there is more than one audience in the online world. Offline, there is

typically one group of people in a room. Online, however, there are multiple “rooms” and multiple groups, all watching the same performance. Boyd (2002) calls this the collapse of context. A large portion of a Facebook user’s social world (parents, classmates, employers, etc.) is represented online. Further, Facebook serves as an archive, wherein the Facebook user’s network of friends can peruse past “missed” performances. Essentially, a behavior on Facebook is available to everyone at any and all times. This creates great strain on the Facebook user, particularly when there are a variety of subgroups online with contradicting social norms (Farquhar, 2013; Farquhar & Davidson, 2012; Krackhardt, 1999). Though a similar strain might occur when one’s social circles get mixed in offline settings (perhaps professional colleagues and family), it is not to the same extent and with the same likelihood as it is with Facebook. With Facebook’s social structure as the starting point, the primary purpose of this paper is to examine the predictors of anxiety among Facebook users. More specifically, the possible predictors examined include Facebook Intensity, Number of Unique Groups, Role Conflict, and Self-Monitoring.

Though anxiety can produce many negative consequences, religiosity has been shown to moderate many negative experiences and outcomes (see Abdel-Khalek, 2011; Leondari and Gialamas, 2009; Levin, Markides and Ray, 1996; Rasic, Robinson, Bolton, Bienvenu, and Sarren, 2010) However, the role of religion in online contexts is notably under-researched. A secondary focus of this paper is to explore the role of religion with regard to Facebook use and anxiety.

Conceptual Framework

Social Anxiety and Facebook-specific Anxiety

Initially termed social phobia, social anxiety is considered one specific type of anxiety disorder and is characterized by fear or apprehension surrounding social behaviors such as eating in public, meeting strangers, and many other public actions. Basically, individuals afflicted with such anxiety worry about being scrutinized, not fitting in or not being accepted (Liebowitz, 1987). Social phobia disorder, or social anxiety, occurs in approximately 13 percent of the population (Kessler et al., 1999). It has been connected with lower well-being (Stein and Kean, 2000), trouble in school (Van Amerigen, 2003), difficulty at work (Wittchen and Fehm, 2003), and substance abuse (Stein and Stein, 2008). Clearly, these are important issues for all of society, but they might be especially troubling for a college student who may be away from home for the first time, experiencing new friends and new activities, and already working to adjust to the general stresses of college life.

Notably, research has found that social anxiety is associated with internet use as a means to avoid face-to-face interactions (Fernandez, Levinson, & Rodebaugh, 2012; Lee & Stapinski, 2012; Shepherd & Edelmann, 2005; Weidmann, et al., 2013), but that using the internet to *replace* physical interaction results in poorer general well-being. Specifically, Lee and Stapinski (2012) found that individuals with social anxiety tend to partake in “problematic” internet use. That is, those with anxiety tended to feel overly safe online and therefore participated in *riskier* interactions.

Anxiety about performance has a greater chance of becoming realized because the individuals are *always* being observed on Facebook. There are, of course, several control mechanisms available to users on Facebook itself such as blocking others from certain content, making

choices about what should and should not be uploaded, tagging or not tagging certain individuals in posts, and so on. However, it might be that those in the study with higher social anxiety will, as suggested by Lee and Stapinski (2012), partake in Facebook behaviors that result in social stress. These behaviors would likely end up compounding anxiety, as the Facebook user's audience can log in to see a performance at any time, even well after the performance is given.

The present study uses a modified version of the Liebowitz (1987) Social Anxiety Scale¹ to assess anxiety specific to Facebook use. The Social Anxiety Scale is an established measure used in clinical settings to assess the presence of social anxiety disorder (Liebowitz, 1987). However, the items on the Social Anxiety Scale are specific to in-person social experiences. Thus, in addition to the Social Anxiety Scale, we developed and use a Facebook-specific anxiety measure, inspired by key items from the original scale, to gauge anxiety in users while interacting on Facebook (see Appendix 1 for list of items). Facebook-specific anxiety comes from public behaviors specific to Facebook such as uploading pictures, commenting on others' content, and making status updates. For the present study we consider the role of Facebook use, along with other key factors, in predicting both social and Facebook-specific anxiety.

Structurally based social pressure

Facebook users tend to have expansive networks filled with dense pockets or cliques (Farquhar, 2008). These cliques are subgroups or circles of friends (Binder, Howes, & Sutcliffe, 2009), coworkers, family, and so on. Members of the subgroups are very likely to be connected

¹ While this scale has been used to assess anxiety clinically, we are not purporting to identify anxiety as a mental illness. We simply use this scale in order to assess the potential relationship between Facebook use and experiences with anxiety produced by social interactions.

to each other, but are less likely to be connected to a large portion of the “rest” of the Facebook user’s expansive social network. To put it plainly, a college student’s *classmates* are likely to all be friends with each other but they are much less likely to be connected with the Facebook user’s *family* (Farquhar & Davidson, 2012).

Taking this structural argument a step further, each of these social sub-pockets has certain expectations of the Facebook user (Farquhar, 2013; Farquhar & Davidson, 2012). In some cases, these group expectations – often called social norms – are *contradictory* (Binder et al., 2009; Farquhar, 2008). When contradictions occur, it is likely that they would bring along conflict and anxiety within the Facebook user’s decision-making process (Farquhar & Davidson, 2012, 2013). Further, since a Facebook user’s profile is always “on” (Boyd, 2004; Boyd and Heer, 2006) and postings on the Internet are easily archived (Negroponte, 1995), these social subgroups can always access the Facebook user’s behaviors. This structure creates what Boyd (2002) has called the *collapse of context*. Essentially, Facebook’s structure of presentation and social surveillance creates a scenario where it is increasingly likely that a behavior that is approved by one social subgroup will be off-putting to another social subgroup. In the end, it might be that the Facebook user simply chooses very bland performances that are likely to offend no one. The point here is that the Facebook user feels the pressure to adhere to the perceived desires of her social groups. She feels the anxiety of performing in accordance with the norms of all of her social sub-pockets. The decision to alter performances would, of course, vary greatly among Facebook users (some may choose defiance over conformity, some may simply be unskilled at altering behaviors to meet social demands).

Engagement with Facebook: Facebook Intensity and Number of Unique Groups

Several components come into play when trying to examine what might contribute to anxiety, particularly anxiety that stems from one's social network. For example, Fernandez, Levinson, and Rodebaugh (2012) found that social interaction anxiety was linked to lower numbers of friends on Facebook. However, Campbell, et al. (2006) suggest that anxiety may *increase* certain social elements (i.e. – a chat function) of sites like Facebook. However, we aim to first establish the involvement level and commitment to the site itself. To that end we employ two measures: Facebook intensity and number of unique groups.

A handful of studies have applied the concept called *Facebook Intensity* (Farquhar & Davidson, 2012, 2013; Ellison, Steinfield, Lampe, 2007; Steinfield, Ellison, Lampe, 2008; Valenzuela, Park, and Kee, 2009), which is essentially a series of items that analyze how much time is spent on Facebook, the number of Facebook friends one has, and how important being a part of the site is to the individual. Quite simply, larger networks and deeper involvement equate to higher Facebook Intensity scores. Though the concept of Facebook Intensity was developed in studies focusing on positive consequences and social capital (Ellison, et al., 2007), it has recently been applied to negative social consequences, such as anxiety (Farquhar & Davidson, 2012, 2013; Fernandez, Levinson, & Rodebaugh, 2012).

In addition to Intensity, we are also examining the number of unique groups on Facebook. This variable is truly getting at the heart of the issue. Network size (mere number of Facebook friends) alone does not account for role conflicts and anxiety (see especially Farquhar, 2008). There must be unique groups that – ostensibly – have varying amounts of overlap and contradiction in their social norms. The McCarty et al. (2001) measurement of unique groups serves as the basis for work within this area of interest. In their work, the individual is asked to

generate the list of unique groups within her larger social network. The inevitable conclusion is that in belonging to social groups, the individual is at least somewhat inclined to adhere to the groups' values, perspectives, and behaviors (Nadel, 1957; Van Maanen, 1978). In terms of the present study, the presence of even a single member of a social group would constitute its "presence" on Facebook. Obviously, that lone member can report any deviance from group norms to other members (DiMaggio, 1986).

Informed by our theoretical framework, we are anticipating that increased Facebook Intensity will result in increased anxiety, both general Social Anxiety and Facebook-specific Anxiety.

H1a: Facebook Intensity will be a predictor of Facebook-specific Anxiety

H1b: Facebook Intensity will be a predictor of Social Anxiety

H2a: Number of Unique Groups will be a predictor of Facebook-specific Anxiety

H2b: Number of Unique Groups will be a predictor of Social Anxiety

Role Conflict

Scholars have more frequently analyzed *role conflict* in the context of organizational theory. Thus, it is typically applied to studies of the workplace. A role conflict occurs when someone's job involves two or more contradictory expectations (Rizzo, House, and Lirtzman, 1970). However, it has relevance in the present study. The "worker" is presently the Facebook user. The "job" is presently performing social behaviors and identity. The effects of role conflict on the individual are generally negative in nature (Coverman, 1989; Hecht, 2001; Home, 1998; Krackhardt, 1999). Typically, the individual caught in a role conflict suffers from increased

stress and diminished psychological well-being. Specifically regarding Facebook, past research has correlated Facebook Intensity and role conflict, as well as, role conflict and anxiety (Farquhar & Davidson, 2012, 2013), but no study has made a *predictive* connection. Based on past literature, however, we anticipate that more role conflict will predict an increase in both types of anxiety.

H3a: Role Conflict will be a predictor of Facebook-specific Anxiety

H3b Role Conflict will be a predictor of Social Anxiety

Self-Monitoring

Controlling or managing one's behavior and expressions from one context to another, or "impression management" (Goffman, 1959), can improve the success of interactions with others. Snyder's (1974) research involving the development of the Self-Monitoring Scale suggests that individuals who are able to respond to social cues and thus modify and regulate their behavior accordingly are successful self-monitors. Those who are less concerned with self-presentation are less likely to focus on and respond to these social cues. Only a few studies have considered the role of self-monitoring in online interactions. Rosenberg (2009) found that self-monitoring on Facebook was not associated with manipulative presentation tactics or self-promotion. Goglinski (2010), however, showed that self-monitoring was related to posting controversial information on Facebook. Despite the dearth of research in this area, we predict that a relationship exists between self-monitoring behavior and both forms of anxiety.

H4a: Self-Monitoring will predict Social Anxiety

H4b: Self-Monitoring will predict Facebook-Specific Anxiety

Religion

Scholarship on religion is extensive, especially so with regard to personal well-being, including anxiety. However, studies examining the role religion plays in online contexts are few (Armfield and Holbert, 2003; Farquhar, 2013; Berger and Ezzy, 2004; Lee, 2009). Armfield and Holbert (2003) showed that higher religiosity predicts lower use of the Internet, but demographics seemed to be more predictive of engagement with the Internet. Other scholars suggest that the Internet may be an effective “tool” for exploring spirituality (Berger and Ezzy, 2004; Lee, 2009), engaging with religion in a context other than traditional religious communities (Lovheim, 2008), and seeking guidance and advice about spiritual conduct (Mishra and Semann, 2010). This “exploring” of spirituality is similar to Turkle’s (1997) study of using online communities to explore identity. Nyland and Near (2007) found that religiosity may predict certain functions such as maintenance of preexisting church-based relationships.

Literature examining offline contexts demonstrates a positive effect on various well-being measures among the religiously active, with some research showing no or negative effects. Religiosity has been shown to contribute to decreased anxiety and depression (Abdel-Khalek, 2011; Harris, Schoneman, and Carrera, 2002; Hughes et al., 2004; Jansen, Motley, and Hovey, 2010; Obst and Tham, 2009) and reduced chances of suicide attempts (Rasic, Robinson, Bolton, Bienvenu, and Sareen, 2010). Just one study demonstrated no relationship between religiosity and social anxiety (Storch, Jason, and Adams, 2002).

Interestingly, some studies have found religion to negatively affect anxiety. For example, Leonardi and Gialamas (2009) found that those who prayed more experienced more anxiety. Similarly, Toburen and Meier (2010) found that anxiety increased among those shown God-related imagery before completing a task. Despite the various contradictory findings, however,

the bulk of the literature suggests support for religiosity and improved well-being, including reductions in anxiety. Only Farquhar (2013) has found connections between religion, Facebook, and a possible decrease in anxiety. That work, however, showed only an association with anxiety, not a predictive relationship. This study attempts to extend the Farquhar (2013) study by considering religion as a predictor of anxiety. Since online relationships are often grounded by offline connections (Kadushin, 1995; Pempek, Yermolayeva, and Calvert, 2009; Zhao, Grasmuck, Martin, 2008), expressing religious views on Facebook might have unwanted offline consequences. While online presentations allow greater control over the messages, they greatly reduce control over the audience (Campbell, 2006; George, 2006; Hewitt and Forte, 2006). Specifically, we are dividing religion into three domains. We consider a Facebook user's religious affiliation, her religious activity (going to church, praying), and her perceptions about religious homophily (tendency of an individual to associate with those with similar religious views) within her Facebook network. We anticipate that religion will predict general social anxiety and Facebook-specific anxiety. The hypotheses specifically regarding religion are listed below:

H5a: Religious Affiliation will be a predictor of Facebook-specific Anxiety

H5b: Religious Affiliation will be a predictor of Social Anxiety

H6a: Religious Activity will be a predictor of Facebook-specific Anxiety

H6b: Religious Activity will be a predictor of Social Anxiety

Full List of Hypotheses

- H1a: Facebook Intensity will be a predictor of Facebook-specific Anxiety
- H1b: Facebook Intensity will be a predictor of Social Anxiety
- H2a: Number of Unique Groups will be a predictor of Facebook-specific Anxiety
- H2b: Number of Unique Groups will be a predictor of Social Anxiety
- H3a: Role Conflict will be a predictor of Facebook-specific Anxiety
- H3b: Role Conflict will be a predictor of Social Anxiety
- H4a: Self-Monitoring will predict Social Anxiety
- H4b: Self-Monitoring will predict Facebook-Specific Anxiety
- H5a: Religious Affiliation will be a predictor of Facebook-specific Anxiety
- H5b: Religious Affiliation will be a predictor of Social Anxiety
- H6a: Religious Activity will be a predictor of Facebook-specific Anxiety
- H6b: Religious Activity will be a predictor of Social Anxiety
- H7a: Network Religious Homophily will be a predictor of Facebook-specific Anxiety
- H7b: Network Religious Homophily will be a predictor of Social Anxiety

Methods

Data Collection and Sample

A total of 250 students completed the survey for this cross-sectional study. Their participation was solicited via emails, containing a survey-linked URL address, from instructors teaching sociology and communication courses in five different institutions. These included three universities in the Southeastern United States (including one private, religiously-based institution), one large university in the Midwest, and one junior college in the Northeast. The

URL address linked respondents to the online survey, which took approximately 15 minutes to complete.

Concept Measurement

Social Anxiety was measured using 23 items tapping into concern with meeting strangers, expressing disagreement to people one doesn't know well, eating in public space, and the like (Liebowitz, 1987). Respondents indicated how much fear or anxiety they felt engaging in the tasks with four response categories ranging from "none" to "severe." The Cronbach's Alpha score was .899.

Facebook Anxiety is a scale inspired from questions on the original Social Anxiety scale (Liebowitz, 1987) to measure experiences specifically on Facebook. We created seven measures specific to Facebook activities that could generate anxiety due to their social nature. These measures include items such as concern with "showing awkward pictures of yourself on Facebook" and "uploading pictures on Facebook that not everyone will like." Respondents indicated how much fear or anxiety they felt engaging in the tasks with four response categories ranging from "none" to "severe." The Cronbach's Alpha score was .756.

The *Facebook Intensity* scale combined responses of six questions tapping into use and intensity of engagement with Facebook such as "Facebook has become part of my daily routine" and "I feel out of touch if I haven't logged onto Facebook for a while" (see Ellison, Steinfield, & Lampe, 2007; Steinfield, Ellison, & Lampe, 2008; Valenzuela, Park, & Kee, 2009). Response categories were Likert Scales ranging from "strongly agree" to "strongly disagree." The Cronbach's Alpha measure of internal consistency yielded a score of .853.

Related to Facebook Intensity, we included two measures of engagement with Facebook. We asked how many Facebook friends they have. The responses were categories ranging from “10 or less” to “more than 400.” Similarly, we asked about how much time per day they spent on Facebook in the past week. Responses were categories ranging from “less than 10 minutes” to “more than 3 hours.” Additionally, we asked respondents to indicate their hours of internet use per day.

The variable *Number of Unique Groups* was created by adding the total number of groups identified by respondents as part of their network.

Our measures of *Role Conflict* were adapted from the scale originally developed by Rizzo and colleagues to gauge conflicts due to conflicting roles in the workplace (Rizzo, House, and Lirtzman, 1970). For example, the original scale contained statements such as “I work with two or more groups who operate quite differently”. We modified these to be specific to Facebook with statements such as, “I am Facebook friends with two or more subgroups that operate quite differently”. Other examples of our nine-item measure include: “I do some things on Facebook just to make people happy” and “I feel like I’m supposed to behave a certain way on Facebook.” The response categories were Likert Scale ranging from “strongly agree” to “strongly disagree.” The Cronbach’s Alpha score was .666².

The *Self-Monitoring* scale (Snyder, 1974) was comprised of 25 items such as “I may deceive people by being friendly when I really dislike them” and “I’m not always the person I appear to be.” The response categories were dichotomous indicating “true/mostly true” and “false/mostly false.” The Cronbach’s Alpha score was .617.

² Clark & Watson (1995) have found that Cronbach’s alpha levels of between .60 and .70 can be considered acceptable.

We used several measures to capture *religion*, including religious affiliation and religiosity. We include religious preference (Protestant, Catholic, Jewish, etc.) and frequency of church attendance (categories ranging from “never” to “more than once a week”). For views of the Bible, response categories were Bible as the actual word of God, inspired word of God, or ancient book of fables, legends, history and moral precepts. Frequency of prayer response categories ranged from “several times a day” to “never.”

We were particularly interested in the intersection of Facebook use and religion. Thus, we included a measure of whether or not respondents’ Facebook friends included people from religious organizations, with those indicating “yes” as the analysis group. We also asked if they filled out the religion field on Facebook (a dichotomous measure reflecting “yes”). Finally, we measured Religious Homophily with the question “how many of the people in your Facebook network do you think hold the same religious preference as you.” The response categories were Likert responses ranging from “almost all” to “none.”

Finally, we included several demographic control measures. These included gender, race, level of parental education, class standing (freshman, sophomore, junior, senior), and whether or not they are on-campus residents.

Findings

Table 1 reports the sample and univariate descriptives. Regarding our key dependent variables, Social Anxiety and Facebook Anxiety, respondents report moderate levels of each. The average Social Anxiety score is 1.87 with a range of 1.0 – 3.13. The average Facebook Anxiety score is 1.65 with a range of 1.0 – 3.29.

The average on the Facebook Intensity Scale of 3.45 shows a moderate to high level of engagement with Facebook. On average, respondents’ Facebook networks contain about 8

unique groups. Respondents also reported on their use of the Internet and engagement with Facebook. The average respondent spends just over four hours per day on the Internet. Seventy-two percent of respondents report having 400 or more Facebook friends, and the largest number, 26 percent, report spending 31-60 minutes per day on Facebook.

Regarding the experience of Role Conflict, respondents report moderately low levels of conflict on Facebook (2.89). Likewise, respondents report a moderate level of self-monitoring (.48).

Respondents were also asked about religion and religiosity. Twenty-eight percent of respondents identify as Protestant, 25 percent as Catholic, 24 percent as some other religion with the remaining having no religious affiliation. About 15 percent attend religious services weekly or more, 26 percent view the Bible in a liberal fashion as a book of fables, legends, history, and moral precepts recorded by men, and 36 percent pray once per day or more. In examining the intersection of religiosity and Facebook usage, about 50 percent of the sample are friends with people from religious organizations, 60 percent filled out the field for religion on Facebook, and about 40 percent report religious homophily in their Facebook network.

Regarding the control variables, the sample is about 68 percent female, 81 percent White, predominantly freshmen (44%) or sophomores (25%), and the majority are on-campus residents (65%). A sizeable majority of respondents' parents have a bachelor's degree or more (73%).

Table 2 reports the multiple linear regression predicting Facebook-specific anxiety. We entered all predictors simultaneously in the model. We find that the experience of Role Conflict is associated with increased Facebook-specific anxiety ($B=.127$). Self-monitoring behavior reduces this anxiety ($B=-.565$). Only one of our religion variables showed significance. Those who attend church more often experience more Facebook-specific anxiety ($B=.031$). In terms of

our control variables, class standing was significant. The higher one's year in school, the more Facebook-specific anxiety reported ($B=.056$). In addition, the higher one's Social Anxiety, the higher his or her Facebook-specific anxiety ($B=.688$)³.

Table 3 presents the multiple linear regression predicting Social Anxiety. As with the previous model, all predictor variables were entered simultaneously. Of all our key variables of interest, only the Self-Monitoring index showed significance. Those who self-monitor experience higher levels of Social Anxiety ($B=.704$).

Several of our control variables were significantly predictive. Males experience less Social Anxiety than females ($B=-.172$). The higher the level of education achieved by one's parents, the lower the Social anxiety ($B=-.065$). Likewise, the higher one's year in college, the lower the Social Anxiety ($B=-.052$). The more one experiences Facebook-specific anxiety, the more one's Social Anxiety increases ($B=.650$).

Discussion

Overall, this study has shown several key predictors of Facebook Anxiety. As we hypothesized, Role Conflict is associated with increased Facebook Anxiety. It is notable that Role Conflict does not predict Social Anxiety. This finding suggests that the reality of efforts to deal with multiple sub-groups possessing multiple norm sets can, indeed, be anxiety producing for those engaging with their Facebook networks.

Notably, Self-Monitoring behaviors are predictors of both Facebook-Specific Anxiety and Social Anxiety. However, the direction of the relationship differs for each measure. The

³ Social Anxiety and Facebook-Specific Anxiety show a correlation of $.673^{***}$. This is not surprising since we developed our Facebook anxiety measures based on the items in the Liebowitz (1987) scale. While both of these scales tap into social anxiety, we feel the Facebook scale is a specific enough type of anxiety to be distinct from general social anxiety. Further, collinearity diagnostics were conducted with each regression analysis and Tolerance and VIF scores did not indicate multicollinearity on these measures.

ability to self-monitor is related to lower Facebook-Specific Anxiety while that same behavior is related to higher levels of Social Anxiety. It may be that those who “manage their impressions” on Facebook possess a particularly keen ability to deal with competing expectations and normative structures. In offline situations, however, this may be acutely difficult because of the face-to-face immediacy, thus resulting in increased Social Anxiety. This may be a fruitful area for future research. Though our Facebook-specific anxiety measures were based on the Social Anxiety scale (Liebowitz, 1987), it is clear that these are distinct concepts and that the experience of anxiety may differ between the online and offline realms. Future research should investigate these nuanced differences.

Regarding the role of religion and religious behavior, it appears that only church attendance has any effect on anxiety. The more frequently one attends church services, the higher one’s level of Facebook-Specific anxiety. Interestingly, however, church attendance does not have any affect on general social anxiety. Given that church attendance is a decidedly social activity, exposing the churchgoer to a community of believers on a regular basis, the potential for negative sanctions is ever-present. Knowing that their Facebook behavior and presentation may be viewed by fellow churchgoers, individuals may feel anxiety about what they present and post. However, it is notable that being Facebook friends with people from religious organizations is not a predictor of Facebook-specific anxiety. It may be that church attendance simply indicates externally motivated religiosity (unlike other measures such as prayer and bible interpretation, which may indicate a religiosity that is more internally-motivated) that could be indicative of an individual who is aware of and concerned with social approval. This concern translates into higher anxiety in the online realm.

Another key finding is that Social Anxiety and Facebook-Specific Anxiety are significant predictors of each other. While the two measures were significantly correlated with each other, the strength of that correlation was low enough to suggest that these are distinct concepts. However, they held strong predictive power in the models, suggesting that anxiety experienced in the offline realm translates easily into anxiety in the online world. This finding seems intuitive given that both realms involve social interaction and an awareness of one's self-presentation. Nonetheless, we find that there are differences in predictors of anxiety in each realm. We believe this to be notable and worthy of future and additional research.

Limitations and future research

There are several limiting factors to the present study's generalizability. First, our sample was a convenience sample of college students. It also skewed toward female and white. Facebook, of course, has a strong hold on college students, so the sample in many ways represents what was once the core of Facebook's users. However, in the current environment, the study's findings are unable to move beyond the population of college students. Other populations are certainly fruitful ground for future research.

Future research should also consider investigating the use of Facebook over time for its effects on anxiety. This study used data gathered at one point in time; thus, we can only report on students' current usage patterns and current anxiety experiences. Subsequent studies should engage longitudinal data, perhaps panel studies, to precisely gauge whether sustained involvement with social media increases or decreases anxiety.

Another issue warranting future research is the application of traditional (read – offline) sociological measures to online realms. Though the practice is becoming more common, more

research is certainly warranted. Additionally, it may be informative to control for the site's privacy settings and their use as a means of screening content for particular groups.

Other social-psychological theories may, of course, add further clarity to this study's findings. Issues regarding *trust*, *identity*, and *Status Construct Theory* are areas in which future research might fruitfully explore.

Lastly, future research should examine religion and the Facebook user with more complexity in terms of religious engagement or religious involvement. For example, the strength of users' affiliation, the importance they place on religion in their life, and other measures of commitment may be more telling than reports of affiliation or church attendance. Other measures of religiosity might be more important to social well-being than mere physical performances such as attending church.

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Table 1 Sample Descriptives

n = 250

Variable	Percent or Average	Minimum-Maximum
Social Anxiety	1.87	1.0 - 3.13
Facebook Anxiety	1.65	1.0 - 3.29
<i>Facebook Use</i>		
Hours of Internet Use Per Day	4.28	0.0 - 15.0
400 or more Facebook Friends	72%	
Spend 31-60 Minutes per day on Facebook	26%	
Facebook Intensity Scale	3.45	1.0 - 5.0
Number of Unique Groups	8.33	1.0 - 13.0
<i>Role Conflict & Self-Monitoring</i>		
Role Conflict Index	2.89	1.2 - 4.6
Self-Monitoring Index	.48	.32 - .68
<i>Religion</i>		
Protestant	28%	
Catholic	25%	
Other Religion	24%	
Attend Church Weekly or More	15%	
Bible as Book of Fables	26%	
Pray Once per Day or More	36%	
Facebook Friends with People from Religious Organizations	50%	
Filled out Field for Religion on Facebook	60%	
Religious Homophily in Facebook Network (Most/Almost All)	40%	
<i>Demographics & Controls</i>		
Male	32%	
White	81%	
Parents Have Bachelor's or More	73%	
Freshmen or Sophomore	68%	
On-Campus Resident	65%	

Table 2 Predictors of Facebook Anxiety
n=250

Variable	B	Std. Error
<i>Facebook Use</i>		
Hours of Internet Use Per Day	-.004	.011
Number of Facebook Friends	.014	.015
Minutes per day on Facebook	.035	.019
Facebook Intensity Scale	-.048	.033
Number of Unique Groups	-.006	.012
<i>Role Conflict & Self-Monitoring</i>		
Role Conflict Index	.127**	.043
Self-Monitoring Index	-.565*	.274
<i>Religion</i>		
Protestant	-.036	.092
Catholic	-.053	.077
Other Religion	-.081	.078
Church Attendance	.031*	.015
Bible as Book of Fables	.058	.062
Frequency of Prayer	-.012	.014
Facebook Friends with People from Religious Organizations	-.030	.068
Religion Field on Facebook	-.078	.052
Religious Homophily	.007	.029
<i>Demographics & Controls</i>		
Male	.080	.052
White	.005	.062
Parental Education	.043	.024
Class Standing	.056*	.024
On-Campus Resident	.108	.062
Social Anxiety	.688***	.051
Constant	-.093	.267
Adjusted R Square	.494	
p<.05*, p<.01**, p<.001***		

Table 3 Predictors of Social Anxiety
n=250

Variable	B	Std. Error
<i>Facebook Use</i>		
Hours of Internet Use Per Day	.014	.010
Number of Facebook Friends	-.024	.015
Minutes per day on Facebook	-.004	.019
Facebook Intensity Scale	.028	.032
Number of Unique Groups	.003	.012
<i>Role Conflict & Self-Monitoring</i>		
Role Conflict Index	.004	.042
Self-Monitoring Index	.704**	.264
<i>Religion</i>		
Protestant	.119	.089
Catholic	.002	.075
Other Religion	.091	.075
Church Attendance	-.006	.015
Bible as Book of Fables	-.058	.060
Frequency of Prayer	.019	.014
Facebook Friends with People from Religious Organizations	.033	.066
Religion Field on Facebook	.057	.051
Religious Homophily	.024	.028
<i>Demographics & Controls</i>		
Male	-.172**	.052
White	-.069	.062
Parental Education	-.065**	.024
Class Standing	-.052*	.024
On-Campus Resident	.108	.062
Facebook Anxiety	.650***	.048
Constant	.711	.255
Adjusted R Square	.514	
p<.05*, p<.01**, p<.001***		

Appendix 1: Liebowitz Social Anxiety Scale with Facebook (FB) Measures

Please indicate how much fear / anxiety you feel for each of the tasks below (0=none, 1=mild, 2=moderate, 3=severe).

Fear/Anxiety Level (0-3)	
	Telephoning in public
	Participating in small groups
	Posting potentially controversial comments on Facebook (FB)
	Drinking with others in public spaces
	Talking to people in authority
	Acting, performing, or giving a talk in front of an audience
	Going to a party
	Accepting new Facebook friends (FB)
	Trying to pick up someone
	Calling someone you don't know very well
	Meeting strangers
	Urinating in a public bathroom
	Entering a room when others are already seated
	Being the center of attention
	Speaking up at a meeting
	Taking a test
	Expressing a disagreement or disapproval to people you don't know very well
	Showing awkward pictures of yourself and others on Facebook (FB)
	Rejecting friend requests on Facebook (FB)

	Returning goods to a store
	Giving a party
	Resisting a high pressure salesperson
	Uploading pictures on Facebook that not everyone will like (FB)
	Making comments on another's Facebook pictures (FB)
	Giving a report to a group
	Eating in public spaces
	Writing while being observed
	Working while being observed
	Making jokes on Facebook (FB)
	Looking someone you don't know in the eyes