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Social Compensation, Social Enhancement, and Rejection in Everyday Online Conversations

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A Thesis presented to the Graduate Faculty of the College of William and Mary in Candidacy for the Degree of Master of Arts

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Communicating using computers and the Internet is an increasingly prevalent means of social connection, especially among young people. The social compensation hypothesis suggests that people who struggle in face-to-face interactions (e.g. introverted, lonely, and socially anxious individuals) will be more likely to seek out and benefit from computer-mediated communication (CMC). In contrast, the social enhancement hypothesis suggests that online communication provides greater benefit for those who already have rich social lives. The first purpose of the present study was to examine these opposing theories in regards to the quantity and quality of young adults’ everyday conversations over the Internet and through text messaging using a daily diary method. Undergraduate participants reported on their online conversations each day for two weeks and afterward completed measures of introversion, loneliness, and social anxiety. We expected to find support for both views depending on the type of CMC channel used but only found evidence for social enhancement. A second aim of our study was to see if naturally occurring instances of online rejection negatively impacted peoples’ daily mood. However, we observed no significant relationship between rejection and mood. Although there was only partial support for our predictions overall, the present findings highlight the importance of CMC in young people’s everyday lives.
Social Compensation, Social Enhancement, and Rejection
in Everyday Online Conversations

Computers and the Internet are an integral part of everyday life in developed nations today. In 2009, approximately 74% of American adults reported using the Internet, and this proportion is even greater (93%) among young adults (Rainie, 2010). As a result, computer-mediated communication (CMC) is now a prevalent means of getting information and connecting with others. During the Internet’s infancy its value as a social tool was questionable, and some researchers even found that Internet use was associated with decreased social connection (Kraut et al., 1998). However, it is apparent that the Internet and other forms of CMC are now a significant part of people’s social lives, especially for the young. Seventy-three percent of teenagers and 83% of young adults who use the Internet now use social networking sites (most notably Facebook), and roughly two out of every three young people use instant messenger (IM; Zickuhr, 2010).

In a large cross-cultural sample, Amichai-Hamburger and Hayat (2011) found that greater Internet use predicted increased contact with friends and family. Such findings suggest that the Internet is facilitating social connection rather than hampering it.

Another increasingly prevalent form of CMC is short message service (SMS), more popularly known as “text messaging” or “texting”. Although text messaging is in some ways similar to Internet-based IM, it differs linguistically from IM (Ling & Baron, 2007) and stands out as a unique form of electronic communication. The rise in popularity of text messaging is largely attributable to the boom of the mobile phone industry (Faulkner & Culwin, 2005). Much like Internet-based CMC, young people dominate the use of SMS. According to data collected in 2009, 75% of teens and 93% of
young adults in the United States own cell phones (Lenhart, Purcell, Smith, & Zickuhr, 2010). Ninety-five percent of young adults (72% of all adults) who own cell phones use their phones for text messaging (Smith, 2010). Findings from European samples reveal that the use of text messaging is greatest during adolescence and declines with age (Faulkner & Culwin, 2005), and this trend may reflect the importance of texting at this particular life phase rather than a simple cohort effect (Ling, 2010).

It is clear that young people are increasingly using the Internet and other forms of electronic communication for social purposes. The fact that so many people use CMC in this manner suggests that it provides some kind social benefit. Questions that address how people derive social benefit from CMC are worth investigating. For instance, is the potential for social benefit equal across all users, or are there certain kinds of people who benefit more from CMC than others?

**Social Compensation Hypothesis**

McKenna and Bargh (2000) were among the first researchers to theorize that the Internet may be more beneficial for some people than for others. They suggest that individuals who experience high levels of anxiety in face-to-face (FTF) social situations will find it easier to engage in social interaction over the Internet. This is because anxiety-inducing features and cues that are normally present in FTF interactions are largely absent online. They also suggest that lonely individuals who lack off-line social connections may be more likely to turn to the Internet for relationship formation (McKenna & Bargh, 2000). These early propositions have since generated a broader set of predictions that make up the social compensation hypothesis.
The social compensation hypothesis generally states that individuals who struggle with FTF social interaction will be more likely to seek out and benefit from CMC. This notion has since gained some empirical support, as researchers have found links between social anxiety and the use of the Internet and CMC. For example, Peter and Valkenburg (2006) surveyed adolescents about their perceptions of online communication and found that those high in social anxiety valued the controllability of CMC and perceived it as broad, deep, and reciprocal more so than those low in social anxiety. Similar findings extend beyond Internet-based CMC to text messaging. In a survey of mobile phone users, Reid and Reid (2007) revealed that socially anxious users preferred texting over voice calling and specifically valued the self-presentational affordances of texting. In a later study of mobile phone users, the same researchers analyzed a number of regression models revealing that young, single, socially anxious users were more likely to recognize and take advantage of the expressional control provided by text messaging (Reid & Reid, 2010). This greater feeling of expressive control, in turn, predicted more positive relationship outcomes.

Researchers have also experimentally demonstrated beneficial effects of CMC for the socially anxious. High and Caplan (2009) had undergraduate students engage in a dyadic interaction with an unacquainted peer, and they randomly assigned the dyads to conduct their interaction either FTF or through IM. They found that socially anxious participants in the IM condition appeared less anxious to their partners and their partners reported greater conversation satisfaction. The FTF condition produced opposite patterns for both outcome measures, indicating that IM was particularly beneficial to participants
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high in social anxiety. This suggests that IM allowed the socially anxious to either reduce or overcome their anxiety and have more satisfying interactions.

Research examining measures related to but different from social anxiety provides additional support for social compensation. For instance, the previously cited study by Peter and Valkenburg (2006) showed that those high in loneliness had similar perceptions of CMC to those high in social anxiety. Among undergraduates, Morahan-Martin and Schumacher (2003) found that lonely individuals preferred online over FTF communication, were more likely to go online to deal with negative moods, and generally reported having enhanced social connections online compared to non-lonely individuals. A survey of younger adolescents and children (age 10 to 16) revealed that the lonely communicated online more frequently, discussed more intimate topics, and felt more comfortable and uninhibited online relative to non-lonely and socially anxious individuals (Bonetti, Campbell, & Gilmore, 2010). In a longitudinal study of adolescents, Selfhout et al. (2009) examined the relationship between off-line friendship quality and Internet use with changes in depression and social anxiety over time. Although Internet browsing was associated with greater depression and social anxiety among individuals with low friendship quality, the use of IM predicted less depression for these same individuals. Put another way, the more those with low off-line friendship quality used CMC, the less depressed they were.

Studies looking at introversion and extraversion have also supported the social compensation view. In a sample of undergraduates, Landers and Lounsbury (2006) found a modest negative correlation between extraversion and total Internet use. In addition to general Internet usage, several studies provide evidence that introverted
individuals are more comfortable using CMC than their extraverted counterparts. Amiel and Sargent (2004) found a negative relationship between extraversion and feeling more comfortable talking to people online. Compared to extraverts, introverts have reported being happiest while using the computer and that they find it easier to talk to people online rather than FTF (Koch & Pratarelli, 2004). A study of Internet chat users showed that introverts felt they reveal more about themselves online than FTF (Amichai-Hamburger, Wainapel, & Fox, 2002). Although one study examining adolescent’s use of CMC with strangers found no relationship between introversion and the frequency of talking to strangers online, it did find that introversion related positively to feeling more comfortable and uninhibited online as well as the desire to meet people (Peter, Valkenburg, & Schouten, 2006).

Finally, researchers have also linked shyness to CMC. Ebeling-Witte, Frank, and Lester (2007) found that greater levels of shyness predicted a greater preference for online over FTF communication among undergraduates. When reporting levels of shyness experienced both online and FTF, individuals who were shy in FTF settings felt much less so online and were even less shy online than their non-shy counterparts (Stritzke, Nguyen, & Durkin, 2004). In a study on shyness and IM use, Bardi and Brady (2010) found that shy users were particularly motivated to use IM to decrease their loneliness. However, they did not find a direct relationship between shyness and IM frequency. Additional research has associated shyness with involvement in online relationships. Individuals who were involved in exclusively online relationships reported greater shyness than those who were not (Ward & Tracey, 2004). Sheeks and Birchmeier (2007) showed that shy individuals who also desired social contact perceived greater
closeness in their online relationships over time and reported greater satisfaction in their online relationships than non-shy individuals (although this second finding was only marginally significant).

Using a quasi-experimental design, Brunet and Schmidt (2008) examined the effects of shyness on self-disclosure in varying online contexts. They recruited both shy and non-shy female undergraduates and had them engage in a dyadic IM conversation in one of two conditions: with a webcam present or without a webcam present. Their results revealed that shy participants spontaneously self-disclosed less when the webcam was present, but the presence of the webcam did not affect self-disclosure for non-shy participants. This suggests that shy individuals are more inclined to self-disclose to others when they feel more anonymous, in-line with McKenna and Bargh's (2000) explanation of social compensation.

Social Enhancement Hypothesis

Shortly after McKenna and Bargh's (2000) early description of social compensation in CMC, research by Kraut and his colleagues produced findings in contrast to the social compensation view. They found that higher Internet use predicted greater overall well-being for extraverts, but less well-being for introverts (Kraut et al., 2002). Thus, they proposed a social enhancement (or “rich get richer”) hypothesis in direct opposition to the social compensation hypothesis.

The social enhancement model posits that individuals who are adept in FTF social situations and already have rich social lives offline will benefit more from the Internet. Just as with social compensation, there is some empirical evidence supporting this hypothesis. For instance, Lee (2009) investigated adolescents’ use of CMC to determine
how it related to both their past and present off-line social relationships. The results revealed that higher quality social relationships during childhood predicted more online communication during adolescence, and greater use of online communication, in turn, predicted more cohesive adolescent friendships. Thus, children who were better off socially were more likely to use CMC in adolescence, making them more likely to continue their social success.

In addition, several studies examining social anxiety and related measures provide some support for the social enhancement view. Stevens and Morris (2007) found no differences in CMC use between undergraduates high in social anxiety and low in social anxiety, although those low in social anxiety were more likely to use blogs. When controlling for total time spent online, Campbell, Cumming, and Hughes (2006) showed that regular online chatters displayed significantly less social phobia than non-chatters. Sheldon (2008) examined unwillingness-to-communicate (a measure of social anxiety and fear) specifically in regards to Facebook use. Although participants high in unwillingness-to-communicate were more motivated to use Facebook to reduce loneliness, they were not any more likely than their non-anxious counterparts to use the site to maintain their existing friendships or to pursue new ones. In fact, those high in unwillingness-to-communicate tended to have fewer Facebook friends.

Other research supports social enhancement by evidencing the rareness of “exclusively online” relationships (those with people not known FTF). If it is true that people use CMC predominantly to maintain their existing off-line relationships, it stands to reason that these forms of communication may better serve those who already have vast social circles. In one study among college students, Internet-only relationships
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comprised only about 7% of participants’ total social circles, and that figure did not exclude former FTF relationships now maintained online (Baym, Zhang, & Lin, 2004). Despite this, participants used the Internet to maintain roughly one third of their local relationships and half of their long distance relationships, suggesting that they use CMC primarily to interact with people they already know in-person or over the phone. Other research has revealed that young people use social networking sites like Facebook to maintain existing social connections rather than form new ones. Sheldon (2008) found that college students reported using Facebook to stay in touch with existing friends much more so than using it to meet new people or find companionship. In another Facebook study, participants cited keeping up with friends as the main reason for using the site, and they rarely reported using it to make new friends (Pempek, Yermolayeva, & Calvert, 2009). Furthermore, 77% of the participants in this study indicated that none of their Facebook friendships began online.

The existence of these opposing hypotheses has led some researchers to reconcile the contrasting findings in the literature. Peter, Valkenburg, and Schouten (2005) examined how introversion related to young adolescents’ frequency of online communication and formation of online friendships. The researchers also measured how much participants communicated online because it made them feel more comfortable and uninhibited, dubbing this measure “social compensation motive”. When they assessed the direct relationship between introversion and frequency of online communication, the correlation was slightly negative, lending support to social enhancement. However, introversion correlated positively with social compensation motive that, in turn, predicted more online communication and friendship formation. In other words, introverts who
used CMC to feel more comfortable and less inhibited communicated online more frequently and were more likely to make online friends.

The same researchers later looked at the relationship between social anxiety and online communication, this time using perceptions of the depth and breadth of self-disclosure in online communication as additional predictors in their model (Valkenburg & Peter, 2007). Again, they revealed that the direct relationship supported social enhancement: those high in social anxiety were less likely to communicate online. But when they included perceptions of the depth and breadth of online communication, the model was consistent with social compensation. The socially anxious were more likely to believe that CMC is conducive to self-disclosure, and this belief predicted greater use of CMC. Such findings indicate that introverted and socially anxious individuals may only seek out and benefit from CMC if they recognize its potential for social compensation.

Research on social networking sites has also attempted to integrate these two contrasting hypotheses. One such investigation compared users and non-users of a nostalgic social networking site (Amichai-Hamburger, Kaplan, & Dorpatcheon, 2008). The authors chose this site under the assumption that its users presented online identities that were more in-tune with their off-line identities. For nostalgic site users, the results revealed that extraverts engaged in other forms of CMC more than introverts. However, the opposite was true among people who did not use the site. These mixed findings led the authors to propose that the ability of introverts to differentiate their online from their off-line personas may affect their overall CMC use.
In a study on Facebook use, Ellison, Steinfield, and Lampe (2007) reported that undergraduates overwhelmingly used Facebook to connect with existing off-line friends rather than make new ones. But they also showed that heavy Facebook use was indicative of enhanced social capital particularly for those with low self-esteem and life satisfaction. Specifically, individuals with low self-esteem and life satisfaction felt more connected to their college community if they also heavily used Facebook. In a study examining perceived popularity of Facebook users, Zywica and Danowski (2008) found that high self-esteem users were more popular both off and online. However, a greater proportion of low self-esteem users valued online popularity, and they were also more comfortable expressing themselves online compared to high self-esteem users. The researchers submit that Facebook may serve as a means of protecting social status for those high in self-esteem, and improving social status for those low in self-esteem.

Finally, there is evidence that gender may have implications in these two opposing hypotheses. Desjarlais and Willoughby (2010) examined how social anxiety among high school boys and girls related to their use of online chat and off-line friendship quality. For girls, they found that chat users had higher friendship quality regardless of their level of social anxiety. However, boys who used chat had even higher friendship quality if they were also high in social anxiety. These results indicate that using chat may equally benefit socially anxious and non-socially anxious girls, but it may be especially beneficial to socially anxious boys.

The Present Study

To date, researchers have examined the social compensation and social enhancement hypotheses primarily through one-time global measures of CMC use (e.g.
Valkenburg & Peter, 2007) and laboratory experiments involving contrived interactions (e.g. Brunet & Schmidt, 2008; High & Caplan, 2009). There are surprisingly few studies that have employed daily diary methods to look at CMC use, and the few that we found are more descriptive in nature and do not address these two hypotheses directly (Baym et al., 2004; Pempek et al., 2009). Researchers have successfully used daily interaction diaries in the past to examine how individual differences play a role in people's FTF social encounters (e.g. Nezlek & Derks, 2001; Nezlek & Pilkington, 1994; Wheeler, Reis, & Nezlek, 1983). However, no studies thus far have used such methods to investigate individual differences in computer-mediated interactions specifically in regards to social compensation and enhancement.

The first aim of the present study was to explore the social compensation and social enhancement hypotheses using daily diary methodology. Specifically, we wanted to see how relevant individual difference variables (primarily social anxiety, introversion, and loneliness) related to the quantity and quality of computer-mediated conversations that young adults have on a day-to-day basis. To do this, we had undergraduate students report on the conversations they had over the Internet and through text messaging for two weeks. Each day during the diary period, participants reported the number of computer-mediated conversations they had (both with people they know and do not know FTF) and gave detailed information about the quality of their most significant conversation. Afterwards they completed questionnaires assessing their social anxiety, introversion, and loneliness. We expected to find support for both social compensation and enhancement depending on CMC channel. For channels like Facebook and text messaging, that primarily serve to maintain or supplement contacts with people known
FTF, we predicted that social anxiety, introversion, and loneliness would negatively relate to the quantity and quality of conversations. Additionally, conversations with people not known FTF would be rare for these channels. For channels like e-mail and IM, we expected that social anxiety, introversion, and loneliness would relate positively to the quality and quantity of conversations, and that there would be more conversations with people not known FTF.

We also wished to investigate differences in CMC based on gender. Past research has shown that, compared to males, females tend to report greater computer-related anxiety, feel less confident and less comfortable using computers, and hold more negative attitudes toward computers and the Internet (Durndell & Haag, 2002; Fallows, 2005; McIlroy, Bunting, Tierney, & Gordon, 2001; Rees & Noyes, 2007; Schumacher & Morahan-Martin, 2001). Females are also more concerned about their privacy on the Internet (Fallows, 2005; Fogel & Nehmad, 2009; Youn & Hall, 2008) and perceive online dating as more risky (Madden & Lenhart, 2006). Such findings have fostered the notion of an Internet gender gap that favors males over females. However, some early studies failed to find gender differences in computer attitudes (North & Noyes, 2002) and psychological outcomes related to CMC (Shaw & Gant, 2002). And in fact, more recent studies indicate that females are using the Internet (Rainie, 2010) and Facebook (Lenhart et al., 2010) as much as or more so than males. Findings from our own research suggest that males and females use Facebook, IM, and text messaging to similar degrees, but females had more cautious and negative perceptions of online relationships (Kovaz, 2010).
Thus, the gap between males and females may not be evident in their overall use of CMC, but rather in their perceptions of relationships formed online. Females may be more wary about interacting with online strangers than males. In regards to the present study, we did not expect to find differences between males and females in the quantity and quality of their computer-mediated conversations overall, but rather in their conversations with people they do not know FTF. Specifically, we predicted that males would have more high quality conversations with people they do not know FTF than females.

**Online Rejection**

Another goal of this study was to look at instances of online rejection in people’s day-to-day lives. The term “ostracism” broadly refers to social rejection by exclusion, or simply the act of ignoring and excluding others (Gruter & Masters, 1986; Williams, Cheung, & Choi, 2000). Williams et al. (2000) pioneered the study of social rejection over the Internet by creating the now widely-used “cyberball” paradigm. In their experiment, each participant played a virtual ball-tossing game on the computer with two other players. Unbeknownst to the participant, the other two players were actually computer-controlled. The computer-controlled players were programmed to either include the participant by regularly tossing him/her the ball, or to exclude the participant by only tossing the ball among themselves. Excluded participants experienced an increase in negative mood and reported lower levels of belonging and self-esteem compared to included participants. These results occurred despite the fact that participants played the game from their own computer and did not expect any future contact with the other “players”.
Researchers have since used the cyberball paradigm to study ostracism over the computer more deeply. Zadro, Williams, and Richardson (2004) found that exclusion had negative effects on feelings of belonging and self-esteem when participants knew the other players were computer-controlled and were following a pre-determined script. Furthermore, researchers have used brain imaging techniques to reveal that ostracism during cyberball causes activation of brain regions associated with physical pain, particularly the anterior cingulate cortex (Eisenberger, Lieberman, & Williams, 2003; Onoda et al., 2010). This suggests that the mere experience of ostracism over the computer can have significant negative psychological impacts. Interestingly, there is some evidence that using CMC can help alleviate the sting of rejection. Gross (2009) had adolescents and young adults play cyberball, and afterwards they either played a computer game by themselves or conversed over IM with an opposite-sex peer. Immediately after playing cyberball, excluded participants felt less valued and had lower-self-esteem than included participants. However, those who engaged in IM were more likely than those who played a game by themselves to have improved relational value and self-esteem afterwards.

Additional research has shown that there are similar negative consequences of interpersonal rejection over CMC. One early study qualitatively analyzed transcripts from public online chatrooms and found that some users clearly became disappointed and frustrated if others ignored them (Rintel & Pittam, 1997). Williams and colleagues (2002) conducted a series of experiments to test the effects of ostracism during online chat. Similar to the cyberball experiments, each participant engaged in a chatroom interaction with two confederates. The confederates either included the participant by
responding to his/her comments, or they completely ignored the participant’s comments and talked only to each other. Excluded participants felt less comfortable and experienced increased negative mood after the interaction compared to included participants. Smith and Williams (2004) replicated this design using text messaging as the CMC medium and found similar negative effects of exclusion on self-esteem and mood. These studies also showed that people ignored over CMC exhibit signs of frustration and often lash out against their excluders with provoking messages (Smith & Williams, 2004; Williams et al., 2002). This research also revealed that rejection over CMC can hurt just as much as FTF rejection. In one of their replications, Williams et al. (2002) included a FTF condition analogous to their chatroom condition and revealed that the negative impact of exclusion on mood was the same for CMC and FTF interactions.

Finally, there is evidence that the effects of rejection may partly depend on individual differences. For example, one study looked at how exclusion affected individuals with different levels of depression and self-esteem (Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997). In their study, the experimenter told participants that a group of their peers had decided to either include them or exclude them from their laboratory group. Participants higher in depression and lower in self-esteem experienced more dysphoria and self-devaluation after exclusion than those low in depression and in high self-esteem. Researchers have also examined individual differences in cyberball experiments. Zadro, Boland, and Richardson (2006) found that the negative effects of exclusion persisted 45 minutes after playing cyberball for participants high in social anxiety, but not for participants low in social anxiety. In other words, the socially anxious were slower in rebounding from ostracism than the non-socially anxious. In a
brain imaging study, Onoda et al. (2010) used cyberball to compare high and low self-esteem individuals on both self-report and neural indicators of social pain following exclusion. Relative to those with high self-esteem, low self-esteem participants who experienced exclusion reported greater social pain and had greater activation of the anterior cingulate cortex (the neural correlate of social pain). Taken together, this research suggests that social rejection may be especially damaging to individuals high in social anxiety and low in self-esteem.

Although researchers have extensively studied computer-mediated rejection in laboratory settings, they have yet to address the effect of online rejection that occurs in people's day-to-day lives. One might ask if “cyberostracism” that occurs in our daily lives impacts us in a similar way. The second aim of the present study was to see how naturally occurring instances of computer-mediated rejection impacted mood on a day-to-day basis. In addition to reporting on their conversations, each day our participants indicated if they sent any messages over CMC for which they expected a reply but did not receive one. The expectation of a response is important because one is not likely to perceive otherwise unanswered messages as instances of being ignored. The previously described laboratory studies showed that in situations where participants most certainly expected replies, withholding replies created a sense of ostracism and negatively affected participants’ mood (Smith & Williams, 2004; Williams et al., 2002). We hypothesized that having messages that went unanswered would negatively impact daily mood. In line with past findings on social anxiety and self-esteem (Onoda et al., 2010; Zadro et al., 2006), we also expected a greater negative impact on mood for participants high in social anxiety and low in self-esteem.
Method

Participants

Participants were 46 male and 82 female undergraduate students (age ranged from 18 to 21 years) enrolled in introductory psychology courses at the College of William & Mary. All of the students in the participant pool were free to sign up for the study until we had reached our desired number of participants. Those who participated received credit toward completion of their psychology course research requirement.

Procedure

Before participants could begin the study, they were required to attend a brief information session. The purpose of the session was to provide participants with detailed information about the study and show them how to complete their daily diary entries. This also gave them an opportunity to ask questions if they were unclear on any aspect of the study. The sessions were held in a classroom on campus and lasted about 15 minutes each. Participants attended the sessions in groups of approximately 10 to 15 people each (with the exception of one participant who attended an individual session).

Each session began once all participants had arrived and read an informed consent. Participants were encouraged to ask questions at any point during the session. First, the experimenter told participants that the study was about their day-to-day online conversations and involved completing daily diary entries about these conversations for two weeks. They were asked not to partake in the study if they could not commit to recording these daily entries (no participants withdrew their consent). Then the experimenter gave detailed instructions about how to complete the diary entries. A sample of the diary was presented on a large-screen projector so that participants had the
measure right in front of them as each part was explained in detail. At the end of the session, participants received an instruction sheet that contained information about how to access the diary measure online, as well as the experimenter's contact information in case any issues arose during the study. They were explicitly told to keep this sheet in a place where it could best serve as a reminder to complete their entries each night.

Participants were also sent e-mail reminders every few days throughout the duration of the study.

Beginning on the day of their information session, participants completed the diary measure at the end of each day for two weeks. The diary measure was posted as an online survey that was accessible on any Internet-connected computer, so participants simply had to visit the web address of the survey to access it. Participants were instructed to complete their entries just before going to bed each night or when they were done using the computer for the day if they did not have Internet access in their home. If they forgot to record an entry on any given night, they were explicitly told not to fill out the entry the following day. This was an attempt to keep accuracy consistent across participants. For the most part, participants adhered to these instructions, as less than 1% of the entries were completed after 10:00 a.m. the following morning (these entries were not excluded from our analyses).

At the end of the two week diary period, participants received an e-mail with instructions for completing the post-diary measures. Just as with the diary measure, they completed the post-diary measures from their own computer via an online survey. We asked participants to complete these measures in one sitting at their earliest convenience. Once they finished the post-diary measures, participants were presented with a debriefing
statement that explained the purpose of the study in more detail. Finally, they received a message thanking them for their participation and telling them to contact the experimenter if they had any further questions.

**Measures**

**Daily diary measure.**

During the diary period, participants accessed the diary measure online at a static web address (see Appendix A for a listing of all included items). Participants completed the measure in its entirety each time they made an entry. The measure itself consisted of three sections. In the first section, participants entered their identifying information (their college ID) and rated their affect for the day. Affect was assessed with a single item that asked participants to rate their overall mood for the day on a scale ranging from -3 (*most negative*) to 3 (*most positive*). This is similar to single-item measures of affect used in previous diary studies (e.g. Nezlek, Kafetsios, & Smith, 2008). Participants were told that this should reflect how they felt across the entire day, not simply how they were currently feeling.

In the second section, participants reported the number of computer-mediated conversations they had that day. Participants were given precise criteria for determining what exactly constituted a conversation. These criteria were presented in the instructions at the top of the page and emphasized during the information session. Any given exchange had to meet two conditions in order to be counted as a conversation. First, the person had to send at least one message and receive at least one message during the exchange. Second, responses during the exchange had to occur within five minutes of each other. We applied this time restriction so that all of the conversations reported
would be relatively synchronous, making them more qualitatively similar both to each other and to FTF conversations. It is important to note that this excludes potentially meaningful asynchronous exchanges that occur over the span of hours or days rather than minutes. This issue will be touched on further in the discussion.

We asked participants to report the number of conversations they had using each of the following CMC channels: E-mail, Facebook, Instant Messenger (IM), Skype, and Text Messaging. Pilot testing revealed that this particular student population used these five channels most often, while the use of other notable CMC channels (such as message boards and Twitter) for daily interaction was rare. For each channel, participants indicated the total number of conversations they had and how many of those conversations were with someone they did not know in-person. During the information session, each channel was clearly defined to help eliminate ambiguity about the kinds of conversations that each channel included. We defined the channels in the following way:

*Email*: Included the use of any e-mail client (e.g. G-mail), but did not include messages sent using IM or live chat features.

*Facebook*: Included any form of communication used within the Facebook website (e.g. private messages, wall posts, status comments, etc.).

*Instant Messenger*: Included any text-based instant messaging programs with the exception of Facebook’s IM feature.

*Skype*: Included voice or video chatting only while excluding Skype’s text-based IM feature.

*Text Messaging*: Included text messages sent using mobile phones or smart phones.
After reporting on their conversations, participants answered the question "Did you send any messages today for which you expected a reply but did not receive one?" If they answered no, they simply moved on to the last section. However, if they answered yes, they also indicated how many messages they sent that did not receive a reply and how important these messages were to them (rated on a 7-point scale with endpoints *not at all important* and *very important*).

The final section had participants provide more detailed information about the most meaningful or significant computer-mediated conversation they had that day. They were only permitted to skip this section if they did not have any interactions over CMC that day. We adapted many of the items in this section from the Rochester Interaction Record (Wheeler & Nezlek, 1977), a customizable measure used to record information about individual FTF interactions. First, participants indicated what CMC channel was used (*E-mail, Facebook, IM, Skype, Text Messaging, or Other*), when the conversation occurred (*morning, afternoon, or night*), and who initiated the conversation (*me or someone else*).

Then they provided information about the other people involved in the conversation. Participants could give detailed information for up to three people. For each person involved, participants indicated his/her initials, gender, whether or not it is someone they know in-person, where the person lives (*local or long distance*), and what their relationship is with the person (*stranger, acquaintance, friend, romantic partner, or family member*). If more than three people were involved in the conversation, they indicated the number of additional people.
Lastly, participants rated the conversation on three dimensions: enjoyment, comfort, and intimacy. Enjoyment simply referred to how much they enjoyed the conversation. Comfort referred to how “at ease” they felt during the conversation. For intimacy, participants were asked to consider how personal the discussion was and how much they self-disclosed. Each of these three items was rated on a scale from 1 (not at all) to 7 (very).

**Post diary measures.**

Participants accessed the post-diary measures online at a static web address at the conclusion of the diary period (see Appendix B for a listing of all items). After entering their identifying information, gender, and age, they completed several questionnaires with order of presentation randomized for each participant. Among them were the 48-item revised Eysenck Personality Questionnaire (EPQ-R; Eysenck, Eysenck, & Barrett, 1985), 10-item Rosenberg self-esteem scale (Rosenberg, 1965), 20-item UCLA loneliness scale (Russell, 1996), 15-item interaction anxiousness portion of the Leary social anxiety scale (Leary, 1983), and 10-item risk in intimacy inventory (RII; Pilkington & Richardson, 1988). Participants completed all four scales of the EPQ-R, although we were primarily interested in the 12-item extraversion scale. After reverse-scoring the appropriate questions, we summed the items and subtracted this score from 12 to create a measure of introversion for each participant. For the other measures, appropriate items were reverse-scored and then summed to create total scores. The reliability coefficients for these total scores were 0.87, 0.91, 0.93, 0.90, and 0.91 for introversion, self-esteem, loneliness, social anxiety, and RII respectively.
Also included was McKenna, Green, and Gleason's (2002) "Real Me" scale that assesses the degree to which participants feel that they are better able to express themselves on the Internet relative to FTF situations. The original scale consists of two yes/no questions and two questions answered on a 7-point scale. We slightly modified the original questions to simplify scoring and correct outdated terminology. The first two questions asked participants if they reveal more about themselves to Internet friends than to real-life friends and if there are things their Internet friends know about them that they cannot share with real-life friends. The next two questions asked the extent to which they express different facets of themselves on the Internet compared to real-life, and if their family and friends would be surprised if they read their online conversations. All responses were rated on a 7-point scale where 1 indicated the least amount of expression over the Internet and 7 indicated the most expression over the Internet. The four items were summed to create a total Real Me score ($\alpha = 0.80$).

The end of the survey asked participants about their experience during the two week diary period. First they were asked how difficult it was to record their entries using the online diary and how accurate they believed their entries were. Both of these questions were answered on a scale from 1 (not at all) to 7 (very). Overall, participants reported that their entries were accurate ($M = 5.65, SD = 1.26$) and not difficult to complete ($M = 2.53, SD = 1.61$). Finally, we wanted to know if the two week diary period was representative of participants' typical behavior. We asked them to think about the past two weeks and rate the extent to which this period was unusual for them. This was done on a 7-point scale where 1 = very routine and 7 = very unusual. If participants felt this period was unusual, they were asked to explain why. These ratings and
comments were examined on a case-by-case basis, but none warranted exclusion from the analyses.

Results

Prior to our main analyses, we calculated simple correlations among the six individual difference measures presented in Table 1. We were primarily interested in Real Me scores (i.e. degree of self-expression over the Internet). There was significant relationship between the Real Me and loneliness ($r = .25, p = .004$), indicating that individuals who are more lonely may feel better able to express themselves over the Internet. Somewhat surprisingly, Real Me scores were not significantly related to introversion or social anxiety. These findings only partially coincide with past results (McKenna et al., 2002) that lend support for the social compensation hypothesis. It is also interesting to note that there was a weak, marginally significant correlation between Real Me and RII ($r = .16, p = .072$). In a previous study, we found that individuals who believe close relationships are risky (high RIIs) had higher Real Me scores than those who perceived relatively little risk in close relationships (Kovaz, 2010).

Descriptives and Overview of Analyses

One hundred twenty-eight participants completed a total of 1362 diary entries. On average, participants completed 10.64 ($SD = 2.44$) out of 14 possible entries. Three duplicate entries and one entry with extreme outliers were excluded from the analyses, leaving a total of 1358 valid entries. Among these valid entries, data pertaining to the most significant conversations were excluded for 16 entries due to participants reporting non-online conversations (e.g. FTF or phone conversations). The mean number of online
Conversations participants had each day was 9.17 ($SD = 7.22$), and there were only 47 entries (3.5%) in which participants reported having no online conversations that day.

The data in this study consisted of a multilevel data structure in which days (i.e., diary entries) were nested within people. Thus, our main hypotheses were examined using multilevel models (MLM). This method of analysis estimates relationships in nested data structures more accurately than comparable ordinary least squares analyses that rely on averaging data at the within-person level. Nezlek (2003) provides a detailed explanation of the logic and advantages of using MLM specifically for analyzing nested diary data. All MLM analyses were conducted using HLM 7.0 Student Edition (Raudenbush, Bryk, & Congdon, 2011). The analyses that follow are divided into three separate sets of models. The first set of models examined individual differences in the number of conversations participants had using each CMC channel and the proportion of these conversations that were with people not known FTF. The second set examined differences in the quality of participants’ most significant online conversations (i.e., the enjoyment, comfort, and intimacy ratings). The final set of models looked at factors related to changes in daily mood (affect).

Unconditional models were run on each of the dependent measures to provide means and estimates of within-person and between-persons variance (Table 2). These descriptive statistics revealed that Skype conversations were relatively infrequent and had low between-persons variance (23%). In light of this, we did not include Skype conversations in our main analyses. Another quite surprising revelation from the unconditional models was that the proportion of conversations with people not known FTF was very low for IM (in fact, the intercept was not significantly different from zero).
This ran counter to our expectation that conversations with unknown persons would be more frequent for this channel compared to others. However, our expectation regarding e-mail was confirmed, as conversations with unknown persons were about three times as frequent for e-mail compared to Facebook and text messaging.

Quantity of Conversations

First, we examined the relationship between the number of conversations per day (Convos) for each CMC channel and the individual difference variables of gender, introversion, loneliness, and social anxiety. We constructed an identical series of models for each of the four channels (e-mail, Facebook, IM, and text messaging), beginning by looking at each predictor individually followed by a full model with all four predictors entered at once. The full model is represented by the following equations:

Level 1 Model:

$$\text{Convos} = \pi_0 + e$$

Level 2 Model:

$$\pi_0 = \beta_{00} + \beta_{01}(\text{Gender}) + \beta_{02}(\text{Introversion}) + \beta_{03}(\text{Loneliness}) + \beta_{04}(\text{Social Anxiety}) + r_0$$

In the level 2 model, $\beta_{00}$ is the intercept (mean) for convos, $\beta_{01}-\beta_{04}$ are the coefficients representing the relationship between convos and the corresponding predictors, and $r_0$ is an error term. Introversion, loneliness, and social anxiety scores were converted to z-scores prior to analysis. This makes interpreting their coefficients fairly straightforward ($\beta$ represents the change in the outcome measure for each standard deviation of change in the predictor). Gender was contrast coded with 1 representing
females and -1 representing males. For these and all proceeding analyses, predictors at level 2 were entered uncentered.

The predictor coefficients for both the separate and full models are listed in Table 3. There were no significant relationships for e-mail or IM, both when predictors were examined individually and all together. Introversion \((t = -2.71, p = .008)\), loneliness \((t = -2.49, p = .014)\), and social anxiety \((t = -2.24, p = .027)\) were all negatively related to Facebook convos when examined separately, but none were significant in the full model. Also, gender was significantly related to Facebook convos in the separate model \((t = 2.13, p = .035)\) and marginally significant in the full model \((t = 1.95, p = .054)\), suggesting that females may have slightly more Facebook conversations than males. A similar pattern of results was found for text messaging. Negative coefficients for introversion \((t = -4.86, p < .001)\), loneliness \((t = -4.35, p < .001)\), and social anxiety \((t = -3.98, p < .001)\) were all significant when looked at separately. However, introversion \((t = -2.10, p = .037)\) and loneliness \((t = -2.48, p = .015)\) remained significant in the full model as well. Taken together, these results only partially confirm our predictions.

Introversion, loneliness, and social anxiety were unrelated to the number of conversations participants had over e-mail and IM, but were negatively related to the number of conversations they had using Facebook and text messaging. This latter trend is consistent with our hypothesis that introverted, lonely, and socially anxious individuals would use these channels less.

We also investigated individual differences in the quantity of conversations that were with people not known FTF. To do this, we constructed models in the same way as described above, only this time the outcome variable was the proportion of conversations
in each channel that were with unknown persons. No significant relationships were found in any of the tested models. This may have been due to the overall low incidence of such conversations in our current sample. Likewise, conversations with unknown persons were very infrequent among participants' most significant online conversations, only accounting for 2.7% of the total. Because of this, we were unable to test our hypotheses concerning conversations with unknown persons in the next set of analyses.

Quality of Conversations

The outcome measures for conversation quality were the enjoyment, comfort, and intimacy ratings of the most significant online conversation participants had each day. We created identical models for each of these three outcome measures using gender, introversion, loneliness, and social anxiety as predictors at level 2. Channel type was included as a predictor at level 1. A frequency breakdown revealed that a large majority of the most significant conversations reported were text messages (65.2%), followed by Facebook (13.1%), e-mail (8.6%), and IM (6.4%). Conversations that used other channels were not included in these analyses. Since our hypotheses concerned e-mail and IM versus Facebook and text messaging, we created a contrast coded variable for channel type (Channel) where -1 indicates e-mail or IM and 1 indicates Facebook or text messaging.

We also wanted to examine the impact of conversations with people who lived a long distance away from participants versus people who lived locally. Forty-two percent of the conversations reported were with people who lived a long distance away. Thus, we entered a contrast coded variable at level 1 (Distance) where -1 indicates a
conversation with someone who lives long distance and 1 indicates a conversation with someone who lives locally. The resulting model is represented as such:

Level 1 Model:

\[
\text{Quality} = \pi_0 + \pi_1 \text{(Channel)} + \pi_2 \text{(Distance)} + e
\]

Level 2 Model:

\[
\begin{align*}
\pi_0 &= \beta_{00} + \beta_{01} \text{(Gender)} + \beta_{02} \text{(Introversion)} + \beta_{03} \text{(Loneliness)} \\
& \quad + \beta_{04} \text{(Social Anxiety)} + r_0 \\
\pi_1 &= \beta_{10} + \beta_{11} \text{(Gender)} + \beta_{12} \text{(Introversion)} + \beta_{13} \text{(Loneliness)} \\
& \quad + \beta_{14} \text{(Social Anxiety)} + r_1 \\
\pi_2 &= \beta_{20} + \beta_{21} \text{(Gender)} + \beta_{22} \text{(Introversion)} + \beta_{23} \text{(Loneliness)} \\
& \quad + \beta_{24} \text{(Social Anxiety)} + r_2
\end{align*}
\]

The coefficients \( \beta_{01} - \beta_{04} \) in the first level 2 equation show the relationship between each level 2 predictor and quality. In the second equation, \( \beta_{10} \) is the relationship between channel and quality, and the coefficients \( \beta_{11} - \beta_{14} \) show the moderating effects of each level 2 predictor on the relationship between channel and quality. Likewise, the third equation displays the relationship between distance and quality (\( \beta_{20} \)) and the moderating relationships with the level 2 predictors (\( \beta_{21} - \beta_{24} \)). Only significant error terms were included in the final models.

We begin by looking at just the level 2 predictors. None of the individual difference measures were related to enjoyment. However, greater introversion was associated with more comfort (\( \beta = 0.37, t = 3.16, p = .002 \)) and greater loneliness was associated with less intimacy (\( \beta = -0.29, t = -2.25, p = .026 \)). There was also a significant
relationship between gender and intimacy revealing that females’ most significant conversations were more intimate than males’ (β = 0.23, t = 2.12, p = .036).

Channel was significantly related to all three measures of quality, suggesting that participants experienced more enjoyment (β = 0.19, t = 2.28, p = .024), felt more comfortable (β = 0.40, t = 4.93, p < .001), and had more intimate conversations (β = 0.22, t = 2.23, p = .028) using Facebook and text messaging compared to e-mail and IM. Contrary to our predictions, there were no moderating effects of individual differences on the relationship between channel and quality. Distance was significantly associated with enjoyment and intimacy such that long distance conversations were more enjoyable (β = -0.15, t = -2.63, p = .009) and more intimate (β = -0.30, t = -4.75, p < .001) than local ones. A similar trend existed for comfort, but this was only marginally significant (β = -0.10, t = -1.90, p = .060). Although there were no moderating effects on distance for comfort and intimacy, there were for enjoyment. Specifically, the gender coefficient was significant (β = 0.14, t = 2.60, p = .009), indicating that females enjoyed their long distance conversations more than males did. In addition, there were marginally significant moderating effects of social anxiety (β = 0.15, t = 1.90, p = .058) and introversion (β = -0.13, t = -1.83, p = .068) hinting that high levels of social anxiety but low levels of introversion were associated with more enjoyable long distance conversations.

**Daily Affect**

We created several different models with daily mood (Affect) as the outcome measure. The first tested our hypotheses concerning computer-mediated rejection. At level 1, we entered a contrast coded variable representing whether or not the participant
sent any messages for which a reply was expected but not received (Rejection) with 1 indicating yes and -1 indicating no. Gender, self-esteem, and social anxiety were entered as predictors at level 2. Self-esteem was positively related to affect ($\beta = 0.24, t = 3.29, p = .001$), suggesting that individuals with high self-esteem experienced better overall mood than their low self-esteem counterparts. However, there was no significant relationship between rejection and affect and no moderating effects of individual differences. This also held true when the importance rating of the messages was added group-mean centered as a level 1 predictor. Thus, our prediction that computer-mediated rejection would be associated with decreased mood was not supported.

Additional models were run to explore the possibility that the quantity and quality of participants’ online conversations were related to affect. These models included gender, introversion, loneliness, and social anxiety as level 2 predictors to check for any moderating effects of individual differences. The total number of online conversations participants had each day and the quality of their most significant conversations (enjoyment, comfort, and intimacy) were entered group-mean centered at level 1 in separate models. Affect was not related to the total number of online conversations, comfort, or intimacy. Enjoyment was a significant predictor of affect, although there were no moderating effects of individual differences. Thus, our final model for affect consisted of a single predictor at level 1:
ONLINE CONVERSATIONS

Level 1 Model:

\[ \text{Affect} = \pi_0 + \pi_1 \times (\text{Enjoyment}) + e \]

Level 2 Model:

\[ \pi_0 = \beta_{00} + r_0 \]
\[ \pi_1 = \beta_{10} + r_1 \]

The relationship between enjoyment and affect was positive (\( \beta = 0.21, t = 6.10, p < .001 \)), meaning that participants tended to have better mood on days in which their most significant online conversations were more enjoyable.

Discussion

The purpose of the present study was to examine the role of individual differences in the quantity and quality of undergraduates’ everyday computer-mediated conversations. We expected to find evidence for social compensation in e-mail and IM conversations, but we anticipated the opposite for conversations over Facebook and text messaging. Our results partially supported the latter prediction, as the number of conversations participants had using Facebook and text messaging was negatively associated with introversion, loneliness, and social anxiety. In other words, socially adept individuals more often used Facebook and text messaging to connect with others in their day-to-day lives. This is consistent with our assertion that these specific channels offer greater benefit to those with rich social lives. It was also clear that Facebook and text messaging were the most important means of CMC in terms of quality. A large majority of participants’ most significant conversations utilized these channels and these conversations were rated higher in enjoyment, comfort, and intimacy than conversations using e-mail and IM. However, there were no individual differences across channels in
the quality of participants' most significant conversations. Thus, despite their greater use of Facebook and text messaging, socially rich individuals did not necessarily have higher quality conversations using these channels.

The overall low incidence of conversations with people not known FTF in the current sample lends support to the social enhancement view. With the exception of e-mail, conversations with unknown persons were quite rare. This, along with the fact that very few of the most significant conversations included unknown persons, indicates that such interactions were not a prominent part of participants' daily lives. Rather than communicating with unknown persons, they overwhelmingly seemed to use CMC to enhance their existing social connections. The value of CMC specifically in enhancing long distance relationships was quite apparent, as the quality of these conversations was higher than conversations with people who live nearby.

We found little evidence supporting the social compensation hypothesis. Loneliness was associated with being better able to express oneself over the Internet compared to FTF. In addition, introverts tended to feel more comfortable during their most significant online conversations compared to extraverts. These findings are consistent with the idea that those who struggle in FTF situations feel more at home in the online environment. However, we failed to demonstrate that such individuals use CMC and communicate with people they do not know FTF more often than others. One possible reason for this is the nature of our sample. Many past studies that support the social compensation hypothesis looked at younger samples ranging from late childhood to early adolescence (e.g. Peter & Valkenburg, 2006; Peter et al., 2006; Selfhout et al., 2009). Our study consisted of a self-selected sample of university students that fell
within a very narrow age range (18-21 years), therefore our findings may only be
generalized to similarly aged student populations. It may be that CMC use evolves as
people progress from childhood and early adolescence into adulthood. As children
mature and develop more complex social relationships, they may be inclined to use CMC
more for strengthening their current relationships rather than forming new ones. It is also
possible that CMC and Internet use in general is shifting away from relationship
formation and more toward social networking. Future research should include
longitudinal studies to examine changes in CMC use in the long-term.

Another limitation and possible reason why we failed to find support for the
social compensation hypothesis is that we only examined conversations in which the
responses occurred within five minutes of each other, making them relatively
synchronous. This excluded potentially meaningful online correspondences that may
occur over spans of hours or days rather than a few minutes. So it is possible that social
compensation is more evident in relatively asynchronous exchanges, particularly over e-
mail. Considering that conversations with unknown persons were most prevalent over e-
mail in the present study, one might find a higher incidence of such interactions when
surveying all kinds of online exchanges instead of only synchronous ones. Still, this does
not explain the lack of individual differences in conversations with unknown persons that
we expected to find for IM, which is a definitively synchronous channel. It is worth
noting, however, that the current design did not allow us to monitor how much time had
actually elapsed during the conversations that participants reported. This means that
participants potentially were reporting asynchronous interactions despite our instructions
not to do so.
Although we were unable to meaningfully examine gender differences in the quality of conversations with unknown persons, we did not find any trends suggesting that females engage in such conversations less frequently than males. This is surprising considering that in past studies we have consistently found that females are especially wary of relationships with online strangers. It may be the case that conversations with unknown persons were too infrequent in the current sample to detect between-persons differences. Despite this, our results did reveal some interesting gender associations. First, we found that females tended to have more Facebook conversations than males. In a previous study we found that males and females reported similar patterns of Facebook use, so this was somewhat unexpected. Perhaps more interestingly, females’ most significant conversations were more intimate, indicating that they may not have much difficulty self-disclosing and discussing intimate topics over CMC. Females also enjoyed their long distance conversations more so than males. These findings run counter to the idea of an Internet gender gap and suggest that females may possibly have more to gain by using CMC to keep in touch with people who live far away. There was no sign of a gender disparity in CMC that favors males which can be taken as further evidence that the gender gap observed in the past may be closing.

The other aim of the current study was to see if naturally occurring instances of rejection over CMC would negatively affect people’s daily mood. Our hypothesis was not supported, as there was no association between rejection and mood. There are a few possible reasons why we failed to observe this relationship. One is that our measure of rejection may simply have been too subtle. Having messages go unanswered, regardless of their importance, may not be enough to significantly worsen affect. Also, if these
instances of rejection did have a negative impact on mood, it is very possible that the effect did not last long enough to influence participants’ ratings by the end of the day when they completed their entries. Past studies, particularly the cyberball experiments, have only examined the relatively immediate effects of computer-mediated rejection, so the long-term consequences of such rejection remain unclear. Presently, the lack of findings suggests that naturally occurring computer-mediated rejection does not have a significant long-term effect on mood.

While exploring other factors potentially related to affect, we discovered that the more enjoyable participants’ most significant conversations were, the better their mood tended to be. A limitation of the current design is that we cannot determine the causal direction of this relationship. It is possible that having an enjoyable online conversation leads to better mood, but it is also possible that being in a good mood could encourage people to engage in more enjoyable conversations. We also cannot rule out the possibility that a third variable, such as a recall bias, systematically affected the ratings of both measures. Whatever the case may be, this result shows that partaking in enjoyable online interactions may be an important part of better day-to-day experiences.

Overall, our data underscores that fact that CMC plays a significant role in the social lives of young adults. They use it on a daily basis to maintain their social connections and to have meaningful interactions that in some cases would not be possible to conduct FTF. We employed a diary method to test the notions of social compensation and social enhancement in hopes of contributing insight into these hypotheses in the context of everyday experiences while overcoming some of the limitations of traditional self-report measures and laboratory studies. To the best of our knowledge, this is the first
study to directly examine these hypotheses using a daily diary method. Therefore, the present findings provide some unique insight into this area by revealing that young adults’ everyday use of CMC is consistent with social enhancement more so than social compensation. Although this methodology may offer a better reflection of peoples’ everyday experiences, it does not completely eliminate the problems associated with one-time measures. Ultimately, a diary measure is still a form of self-report that is susceptible to the same recall biases as traditional single-assessment self-reports. Nonetheless, the present study provides a good complement to the literature in an area where these novel, repeated-measures designs are scarce. Future CMC research should continue to utilize a wider variety of data collection techniques in order to gain a deeper understanding of the phenomenon.
References


Appendix A

Daily Diary Measures

ID

Please enter your WM ID
(e.g. jdsmit)

Please rate your overall mood for today...
(-3 = Most Negative, 3 = Most Positive)

We would like you to report on the conversations that you had online today. An exchange with another person in which you send AND receive one or more messages is considered a conversation. Only report on conversations in which messages were sent/received within 5 minutes of each other. For each form of online communication, please indicate how many conversations you had today and indicate how many of these were with people that you do not know in-person. If you had no conversations of that type, please write 0.

E-mail

How many conversations did you have using e-mail today?

How many were with people you do NOT know in-person?

Facebook

How many conversations did you have using Facebook today?

How many were with people you do NOT know in-person?

Instant Messenger

How many conversations did you have using IM today?

How many were with people you do NOT know in-person?

Skype

How many conversations did you have using Skype (voice chat only) today?

How many were with people you do NOT know in-person?

Text Messaging

How many conversations did you have using text messaging today?

How many were with people you do NOT know in-person?
Now think about all of the types of online communication listed above...

Did you send any messages today for which you expected a reply but did not receive one?
- Yes ☐  No ☐

If yes...
How many messages did you send that did not receive a reply?

How important were these messages to you?
(1 = Not at all important, 7 = Very important)

1 2 3 4 5 6 7
☐ ☐ ☐ ☐ ☐ ☐ ☐
Now we would like you to think of the most meaningful or significant online conversation you had today. Please fill out the information in the form below regarding this conversation. If you did not have any online conversations today, skip this section.

What type of conversation was this?
- [ ] E-mail
- [ ] Facebook
- [ ] Instant Messenger
- [ ] Skype (voice chat)
- [ ] Text messaging
- [ ] Other

When did this conversation occur?
- [ ] Morning
- [ ] Afternoon
- [ ] Night

Was the conversation initiated by you or someone else?
- [ ] Me
- [ ] Someone else

Please provide the following information for all of the people involved in the conversation

<table>
<thead>
<tr>
<th>Person</th>
<th>What are this person's initials?</th>
<th>What is this person's gender?</th>
<th>Is this someone you know in-person?</th>
<th>Where does this person live?</th>
<th>What is your relationship with this person?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If more than three others were involved in this conversation, indicate the number of additional people.

Number of additional people: 

How enjoyable was this conversation?
(1 = Not at all enjoyable, 7 = Very enjoyable)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

How comfortable were you during this conversation (how "at ease" did you feel)?
(1 = Not at all comfortable, 7 = Very comfortable)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
</table>

How intimate was this conversation (in terms of the depth of content and self-disclosure)?
(1 = Not at all intimate, 7 = Very intimate)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
</table>
Appendix B

Post-Diary Measures

ID
Please enter your WM ID (e.g. jdsmith)

ID NUMBER
Please enter your WM ID NUMBER (e.g. 93000000)

Please double check to make sure you have entered both your WMID and ID number correctly.

What is your gender?
- Male
- Female

What is your age?
Age in years:


Here are some questions regarding the way you behave, feel, and act. Try and decide whether "Yes" or "No" represents your usual way of acting or feeling. Work quickly and don't spend too much time on any one question; we want your first reaction, not a long drawn-out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions. There are no right or wrong answers, and this isn't a test of intelligence or ability. It is simply a measure of the way you behave.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does your mood often go up and down?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>2. Do you take much notice of what people think?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>3. Are you a talkative person?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>4. If you say you will do something, do you always keep your promise no matter how inconvenient it might be?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>5. Do you ever feel 'just miserable' for no reason?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>6. Would being in debt worry you?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>7. Are you rather lively?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>8. Were you ever greedy by helping yourself to more than your share of anything?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>9. Are you an irritable person?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>10. Would you take drugs which may have strange or dangerous effects?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>11. Do you enjoy meeting new people?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>12. Have you ever blamed someone for doing something you knew was really your fault?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>13. Are your feelings easily hurt?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>14. Do you prefer to go your own way rather than act by the rules?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>15. Can you usually let yourself go and enjoy yourself at a lively party?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>16. Are all your habits good and desirable ones?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>17. Do you often feel 'fed-up'?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>18. Do good manners and cleanliness matter much to you?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>19. Do you usually take the initiative in making new friends?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>20. Have you ever taken anything (even a pin or button) that belonged to someone else?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>21. Would you call yourself a nervous person?</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>22. Do you think marriage is old-fashioned and should be done away with?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>23. Can you easily get some life into a rather dull party?</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>24. Have you ever broken or lost something belonging to someone else?</td>
<td>☑</td>
<td>☐</td>
</tr>
</tbody>
</table>
25. Are you a worrier?  Yes No
26. Do you enjoy co-operating with others?  Yes No
27. Do you tend to keep in the background on social occasions?  Yes No
28. Does it worry you if you know there are mistakes in your work?  Yes No
29. Have you ever said anything bad or nasty about anyone?  Yes No
30. Would you call yourself tense or 'highly-strung'?  Yes No
31. Do you think people spend too much time safeguarding their future with savings and insurances?  Yes No
32. Do you like mixing with people?  Yes No
33. As a child were you ever cheeky to your parents?  Yes No
34. Do you worry too long after an embarrassing experience?  Yes No
35. Do you try not to be rude to people?  Yes No
36. Do you like plenty of bustle and excitement around you?  Yes No
37. Have you ever cheated at a game?  Yes No
38. Do you suffer from 'nerves'?  Yes No
39. Would you like other people to be afraid of you?  Yes No
40. Have you ever taken advantage of someone?  Yes No
41. Are you mostly quiet when you are with other people?  Yes No
42. Do you often feel lonely?  Yes No
43. Is it better to follow society's rules than go your own way?  Yes No
44. Do other people think of you as being very lively?  Yes No
45. Do you always practice what you preach?  Yes No
46. Are you often troubled about feelings of guilt?  Yes No
47. Do you sometimes put off until tomorrow what you ought to do today?  Yes No
48. Can you get a party going?  Yes No

Please indicate the extent of your agreement or disagreement with each of the statements below, as they apply to you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel I am a person of worth, at least on an equal basis with others.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2. I feel that I have a number of good qualities.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3. All in all, I am inclined to think I am a failure.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4. I am able to do things as well as most people.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>5. I feel that I do not have much to be proud of.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>6. I take a positive attitude toward myself.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7. On the whole, I am satisfied with myself.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>8. I wish I could have more respect for myself.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>9. I certainly feel useless at times.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>10. At times I think I am no good at all.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
For each statement, please indicate how often you feel the way described by using the provided scale.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel in tune with the people around me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. I lack companionship.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. There is no one I can turn to.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. I do not feel alone.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. I feel part of a group of friends.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. I have a lot in common with the people around me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. I am no longer close to anyone.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. My interests and ideas are not shared by those around me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. I am an outgoing person.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. There are people I feel close to.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. I feel left out.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. My social relationships are superficial.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. No one really knows me well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>14. I feel isolated from others.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>15. I can find companionship when I want it.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>16. There are people who really understand me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>17. I am unhappy being so withdrawn.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>18. People are around me but not with me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>19. There are people I can talk to.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>20. There are people I can turn to.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Please indicate the degree to which each statement is characteristic of you using the provided scale.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I often feel nervous even in casual get-togethers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I usually feel uncomfortable when I am in a group of people I don't know.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am usually at ease when speaking to a member of the opposite sex.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I get nervous when I must talk to a teacher or boss.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Parties often make me feel anxious and uncomfortable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I am probably less shy in social interactions than most people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I sometimes feel tense when talking to people of my own sex if I don't know them very well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I would be nervous if I was being interviewed for a job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I wish I had more confidence in social situations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I seldom feel anxious in social situations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. In general, I am a shy person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I often feel nervous when talking to an attractive member of the opposite sex.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I often feel nervous when calling someone I don't know very well on the telephone.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I get nervous when I speak to someone in a position of authority.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I usually feel relaxed around other people, even people who are quite different from me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Listed below are several statements that reflect different attitudes about relationships. Some of the items refer to general attitudes or beliefs about relationships. Other items refer to more specific kinds of interactions, such as those with acquaintances (e.g. someone you've only met once, someone you only know from class), with casual friends, or with people you are very close to.

Using the provided scale, indicate the extent to which you agree with each statement. There are no right or wrong answers. This is simply a measure of how you feel. Please try to give an honest appraisal of yourself.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very strong agreement</th>
<th>Moderate agreement</th>
<th>Slight agreement</th>
<th>Slight disagreement</th>
<th>Moderate disagreement</th>
<th>Very strong disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is dangerous to get really close to people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prefer that people keep their distance from me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I'm afraid to get really close to someone because I might get hurt.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At best, I can handle only one or two close friendships at a time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I find it difficult to trust other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I avoid intimacy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being close to other people makes me feel afraid.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I'm hesitant to share personal information about myself.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being close to people is a risky business.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The most important thing to consider in a relationship is whether I might get hurt.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do you think you reveal more about yourself to people you know on the internet than to real-life (non-internet) friends?

<table>
<thead>
<tr>
<th>Yes, very much</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, not at all</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

Are there things your internet friends know about you that you cannot share with real-life (non-internet) friends?

<table>
<thead>
<tr>
<th>Yes, very much</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, not at all</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

To what extent do you express different facets of yourself on the internet than to others in real-life?

<table>
<thead>
<tr>
<th>A great deal</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

To what extent would your family and friends be surprised if they read your e-mails, instant messages, and other internet postings?

<table>
<thead>
<tr>
<th>A great deal</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>
Please answer the following questions about your experience with the diary.

How difficult was it to use the diary to record your online conversations?

<table>
<thead>
<tr>
<th>Not at all difficult</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

How accurate do you believe your diary entries were?

<table>
<thead>
<tr>
<th>Very inaccurate</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Finally, we would like to know whether or not the two week diary period was a good representation of your typical behavior. Using the scale below, please rate the extent to which these two weeks were unusual for you. When answering this question, think about any unusual events (other than this study) that may have caused you to break from your daily routine.

Overall, these two weeks were...

<table>
<thead>
<tr>
<th>Very routine</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very unusual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

If these two weeks were unusual for you, please explain...

[ ]
Table 1

*Pearson Correlations among Individual Difference Measures*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introversion</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self Esteem</td>
<td>-.27**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Loneliness</td>
<td>.42**</td>
<td>-.60**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Social Anxiety</td>
<td>.67**</td>
<td>-.37**</td>
<td>.42**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Real Me</td>
<td>.06</td>
<td>-.14</td>
<td>.25**</td>
<td>.10</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6. RII</td>
<td>.22*</td>
<td>-.24**</td>
<td>.44**</td>
<td>.16</td>
<td>.16</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note:* *p < .05, two-tailed. **p < .01, two-tailed.*
Table 2

*Means and Variance Components for Dependent Measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>Within-person variance</th>
<th>Between-persons variance</th>
<th>% variance Between-persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail Convos</td>
<td>0.91</td>
<td>1.28</td>
<td>1.67</td>
<td>57%</td>
</tr>
<tr>
<td>Pct. unknown</td>
<td>0.18</td>
<td>0.08</td>
<td>0.05</td>
<td>38%</td>
</tr>
<tr>
<td>Facebook Convos</td>
<td>1.95</td>
<td>6.12</td>
<td>5.66</td>
<td>48%</td>
</tr>
<tr>
<td>Pct. unknown</td>
<td>0.06</td>
<td>0.02</td>
<td>0.03</td>
<td>62%</td>
</tr>
<tr>
<td>IM Convos</td>
<td>0.60</td>
<td>1.71</td>
<td>3.00</td>
<td>64%</td>
</tr>
<tr>
<td>Pct. unknown</td>
<td>0.05</td>
<td>0.01</td>
<td>0.03</td>
<td>83%</td>
</tr>
<tr>
<td>Skype Convos</td>
<td>0.14</td>
<td>0.15</td>
<td>0.05</td>
<td>23%</td>
</tr>
<tr>
<td>Pct. unknown</td>
<td>0.09</td>
<td>0.04</td>
<td>0.03</td>
<td>41%</td>
</tr>
<tr>
<td>Text Convos</td>
<td>5.67</td>
<td>8.41</td>
<td>11.46</td>
<td>58%</td>
</tr>
<tr>
<td>Pct. unknown</td>
<td>0.06</td>
<td>0.02</td>
<td>0.03</td>
<td>54%</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>4.92</td>
<td>1.91</td>
<td>0.50</td>
<td>21%</td>
</tr>
<tr>
<td>Comfort</td>
<td>5.66</td>
<td>1.61</td>
<td>0.49</td>
<td>24%</td>
</tr>
<tr>
<td>Intimacy</td>
<td>3.93</td>
<td>2.37</td>
<td>1.49</td>
<td>39%</td>
</tr>
<tr>
<td>Affect</td>
<td>1.02</td>
<td>1.49</td>
<td>0.46</td>
<td>23%</td>
</tr>
</tbody>
</table>

*Notes:* Convos refers to the total number of conversations per day for each channel. Pct. unknown refers to the proportion of conversations in each channel that were with people not known FTF. Enjoyment, Comfort, and Intimacy are ratings of participants’ most significant online conversation each day. Affect is a rating of overall mood each day.
Table 3

*Coefficients for Conversations per Day*

<table>
<thead>
<tr>
<th></th>
<th>β (Separate)</th>
<th>β (Full)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-mail</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.00</td>
<td>-0.01</td>
</tr>
<tr>
<td>Introversion</td>
<td>-0.05</td>
<td>-0.08</td>
</tr>
<tr>
<td>Loneliness</td>
<td>-0.09</td>
<td>-0.10</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>0.01</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>Facebook</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.40*</td>
<td>0.33†</td>
</tr>
<tr>
<td>Introversion</td>
<td>-0.53**</td>
<td>-0.41†</td>
</tr>
<tr>
<td>Loneliness</td>
<td>-0.46*</td>
<td>-0.28</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>-0.37*</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>IM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>Introversion</td>
<td>0.23</td>
<td>0.27</td>
</tr>
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<td>Loneliness</td>
<td>-0.09</td>
<td>-0.25</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>0.18</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>Text</strong></td>
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<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.59†</td>
<td>0.41</td>
</tr>
<tr>
<td>Introversion</td>
<td>-1.28***</td>
<td>-0.76*</td>
</tr>
<tr>
<td>Loneliness</td>
<td>-1.12***</td>
<td>-0.64*</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>-1.11***</td>
<td>-0.30</td>
</tr>
</tbody>
</table>
Notes: The Separate column lists \( \beta \)'s for predictors examined individually, and the Full column lists \( \beta \)'s from the full model with all predictors included.

\[ \hat{p} < .10. \quad *p < .05. \quad **p < .01. \quad ***p < .001. \]