

# Facebook Makes the Heart Grow Fonder: Relationship Maintenance Strategies Among Geographically Dispersed and Communication-Restricted Connections

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## ABSTRACT

The increasing ubiquity of information and communication technologies has dramatically impacted interpersonal communication and relationship maintenance processes. These technologies remove temporal and spatial constraints, enabling communication at a distance for low to no physical costs. Research has established that technologies such as email supplement other forms of communication in relationship maintenance, but to what extent do newer technologies—which contain a unique set of affordances—facilitate these processes? Furthermore, do SNS users engage in different practices through the site and obtain different relational benefits based on specific characteristics of the tie? Findings from a survey of adult Facebook users (N=415) indicate that geographically distant Facebook Friends, as well as those who rely on the site as their primary form of communication, engage in relationship maintenance strategies through the site to a greater extent and perceive the site to have a more positive impact on the quality of their relationships.

## Author Keywords

Facebook; relationship maintenance; social network sites; computer-mediated communication; interpersonal communication

## ACM Classification Keywords

H.5.3. Group and Organization Interfaces – Web-based Interaction

## General Terms

Human Factors; Theory

## INTRODUCTION

Research over the last decade has established that technologies such as email [2, 3, 23, 26, 42] and instant messaging [37, 47] play an important role in the

relationship maintenance process, often supplementing other forms of communication when physical distance prohibits frequent face-to-face communication. These technologies have generally taken a back seat to “richer” communication channels such as phone calls and in-person interactions, with mediated channels often—but not always (e.g., [2])—rated as less important for maintaining relationships. That said, a major difference exists between email and IM, in which individuals communicate through a more private channel and interactions are often one-on-one, and SNSs like Facebook, which prioritize public, one-to-many communication. Facebook provides a low-cost mechanism through which to connect and interact with a wide range of people, and users appear to be embracing the site’s many interaction-centric features, as seen in the high frequency of daily and weekly use of features such as “Liking” content, commenting on status updates, and commenting on photos by American adults [21].

Furthermore, communication technologies make it increasingly easy to maintain relationships at a distance through a variety of channels. While keeping in touch with friends who had moved away was once costly—both in terms of time and financial investments—these technologies have removed temporal and spatial constraints that once caused many long-distance relationships to fade away. Instead, friends are able to keep in touch through emails, text messages, and Facebook posts, all for a minimal investment. Even Robin Dunbar [15], who has generally been dismissive of SNSs as a source of meaningful interaction, conceded: “I suspect that Facebook’s one great contribution has been to slow down that rate of relationship decay by allowing us to keep in touch with friends over long distances” (p. 83).

But can these technologies do more than simply “slow down” relational decay? Instead, can sites meant to connect people and facilitate communication benefit the relationship maintenance process and, for some dyads, even improve relational quality? While face-to-face communication is undoubtedly important for relationship maintenance, and especially important for one’s closest ties [12, 13], Facebook may serve an important role for those

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connections for whom one cannot see in person but can stay connected to through the site. Therefore, the present study presents results from an empirical study of adult Facebook users on their use of the site to stay connected with a randomly<sup>1</sup> selected Facebook Friend. The data will be analyzed to determine if there are main effects of geographic distance and communication channel on users' engagement in a set of relationship maintenance strategies, as well as the degree to which they perceive their use of the site impacts the quality of their relationship with that Friend.

Findings from this study expand research on new communication technologies' role in relationship maintenance processes, especially among more casual relationships, which are an understudied group but comprise the majority of relationships on these sites.

### **TECHNOLOGY'S ROLE IN RELATIONSHIP MAINTENANCE**

How do people use computer-mediated communication (CMC) to maintain relationships with various types of connections? Early research focused on email and instant messaging's (IM) role in relationship maintenance, highlighting differences between email's asynchronicity and IM's more natural, "real-time" interactions. For example, Stafford, Kline, and Dimmick [42] found that email was used more frequently for interpersonal communication than for personal gain, business, or gratification opportunities, while Johnson and colleagues [26] found a number of differences in the maintenance strategies employed in emails sent to family, friends, and romantic partners, but few differences between emails sent to recipients geographically close versus those who lived much farther away. Longitudinal research by both Ramirez and Broneck [37] and Valkenburg and Peter [47] found that IM was employed as a relationship maintenance mechanism and was positively correlated with various relational outcome measures.

When considering long-distance relationships, statistics suggest that millions of Americans are involved in long-distance relationships at any given time [39], and CMC has become a mainstay for maintaining these relationships while partners are physically separated. Research has established positive correlations between use of CMC in long-distance relationships and increased levels of love and intimacy [20] and trust [8]. More recent research by Johnson and colleagues [27] found similarities in how geographically close and long-distance friends defined closeness, with a focus on "self-disclosure" and "help and support," both of which can be provided through CMC (as opposed to other resources that may require physical proximity).

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<sup>1</sup> See Method section for details regarding how participants selected the Friend they rated in the study.

### ***Facebook and Relationship Maintenance***

The emergence of social media—and specifically social network sites—in recent years has further encouraged relationship maintenance through online communication channels. Tong and Walther [46] note four features of SNSs that aid the relationship maintenance process: asynchronous communication, which removes temporal constraints; control over dissemination of content; features to foster interaction, participation, and feedback; and the ability to share and embed multimedia messages, including photos, links, and video. These features expand on previous forms of communication in a number of ways, most notably by simplifying the process of passively consuming content produced by one's Friends (via Facebook's News Feed, Twitter's tweet stream, etc.) and by providing diverse communication methods that include both text-based and audio-visual sources. And contrary to some recent commentary (e.g., [15]) suggesting these sites' only contribution to relationship maintenance is extending their lifespan beyond what would have existed without the technology, recent empirical data suggest that SNS users have more close connections [21], more face-to-face interactions with close friends [4], more acquaintances [4], and more diverse networks [21] than non-users. Furthermore, relationship maintenance is consistently referenced as a major reason for use of SNSs across different populations [28, 29, 33].

The most popular SNS, Facebook, currently maintains a user base exceeding one billion active users worldwide. Among Internet-using U.S. adults, 72% have profiles on a SNS [5] and 92% of SNS-using adults [21] (67% of all Internet users [14]) have a Facebook profile. Relationship maintenance occurs at a number of levels through Facebook. At its most basic level, Friending another user provides access to profile information and (typically) increases the ability to interact with another user, as well as to passively consume information without formal interaction. Users can communicate with each other through public (status updates, comments, and Likes) and private (chat, closed groups, and messages) features, exchanging personal information and providing resources such as support and information. Use of Facebook to send birthday wishes is viewed by many as a form of relationship maintenance [45] and in some cases, constitutes the only directed communication between two Friends [48].

While communicating through Facebook is generally seen as a supplement to other forms of interaction, much as email was in the work of Barry Wellman more than a decade ago [23], research has yet to address whether using Facebook may function in a role beyond just "filling in the gap" when other forms of communication are unavailable or less desirable. In other words, researchers have yet to empirically address whether specific uses of Facebook improve the quality of users' relationships with some of their Facebook Friends and, if so, for whom those improvements are most likely to occur. For example,

Facebook may be the only communication channel employed by some relational dyads. In these cases, Facebook is not supplementing other forms of communication; rather, it is the sole link keeping the two people connected. These questions will be addressed in the next section.

### **Research Questions and Hypotheses**

Even though CMC researchers have pointed to the affordances of technology in facilitating communication and relationship maintenance among more casual relationships, many researchers still focus on individuals' closest ties—who also tend to be geographically proximate. While it is likely that people use a greater quantity of communication channels [24] and use certain channels with more frequency when interacting with their closer ties, little research has examined differences in communication patterns across various types of relational dyads, with a few notable exceptions (e.g., [1]). On Facebook, this is of special interest, as users may be relying on the site as the primary form of communication to stay in touch with more geographically distant and weaker ties.

To determine how Facebook use affects individuals' relationship maintenance strategies—and how that use varies across different types of relationships—a number of analyses will be proposed. Specifically, research questions and hypotheses will examine differences between geographically proximate versus distant ties, as well as between individuals who rely on Facebook as their sole or primary communication method with a specific Friend versus those who communicate through a wider variety of channels (e.g., phone, email, face-to-face, IM).

At its most basic level, relationship maintenance is about communication and interaction between partners. As Dindia [10] notes, “To maintain a relationship, partners must communicate with one another... The end of a relationship occurs when people stop communicating” (p. 1). While various studies have established communication behaviors individuals perform on the site (e.g., [21]), only Ledbetter et al. [32] has examined differences in communication across variations in ties, finding that frequency of communication (both on Facebook and through more traditional channels) positively predicted relational closeness. In other words, as engagement in interaction through Facebook's many communication features increased, so did perceived emotional closeness ratings. The present study will first determine if differences exist in how Facebook users employ the site's communication features to interact with Friends who live both nearby (i.e., in the same town) and far away (i.e., more than a day's travel).

RQ1: Does frequency of Facebook communication vary based on geographic proximity of the Friend?

A more rigorous evaluation of relationship maintenance on Facebook requires examining the strategies users employ to

stay connected with their Friends. Once formed, relationships are maintained through a series of behaviors and routines [12]. The most commonly used measure for relationship maintenance, Stafford and Canary's Relationship Maintenance Strategies Measure (RMSM) [41], includes five subscales: positivity, openness, assurances, networks, and shared tasks. As noted in the Method section, this measure has a number of flaws when applied to a setting such as Facebook, which includes significant variance in both the relational closeness of ties [19] as well as geographic proximity. Recent research by Vitak [49] developed a four-factor relationship maintenance measure that accounts for both the specific affordances of SNSs as well as the extensive previous work on relationship maintenance in offline settings. If Facebook is serving a supplemental or relationship-enhancing role, we would expect to see geographically distant Friends more engaged in these relationship strategies. Furthermore, because of the site's many communication features, we would expect that Friends who live at a greater distance from one another would perceive Facebook as having a greater impact on the quality of the relationship than Friends who live near one another (and can presumably meet up in person more frequently).

H1: Individuals will report greater engagement in Facebook relationship maintenance strategies with a geographically distant Facebook Friend than with a geographically proximate Friend.

H2: Individuals will perceive their use of Facebook as having a more positive impact on the quality of their relationship with a geographically distant Facebook Friend than with a geographically proximate Friend.

In addition—and perhaps concurrent—to geographically distant connections, another type of dyad that might see relational benefits from using Facebook are those who rely on the site as their primary form of communication. Facebook users have large networks on the site, with the majority of those connections categorized as weak ties [50]. Whether living in the same town or in another country, Facebook may be the only point of connection between these Friend connections, who may include old high school friends they haven't seen in decades, coworkers from previous jobs, people met at a work conference or on a vacation, friends of friends, and more. As there is no cost to staying “Friends” once the technical connection has been made, many Facebook users see little reason to remove these weaker ties from their network [51]. Furthermore, Facebook may provide the only point of contact with these people, enabling them to passively keep in touch through viewing content the other has posted, and through more interactive communication, such as commenting and sharing posts, such as birthday wishes [48]. While geographic constraints are likely to be a factor in many of these relationships, another major reason for preferring Facebook communication is the ease and convenience of using the site

over more costly forms of communication.

That said, people who primarily rely on Facebook to communicate with a social tie are likely to place a higher value on the site and be more engaged in relationship maintenance than those who interact through other channels in addition to Facebook because the site is providing them with valuable relational information that would be more difficult to obtain or would likely be delayed if it were obtained through alternate channels. Therefore:

H3: Compared with those who communicate through multiple channels, those for whom Facebook serves as a primary form of communication will report higher engagement in Facebook relationship maintenance strategies with a specific Facebook Friend.

H4: Compared with those who communicate through multiple channels, those for whom Facebook serves as a primary form of communication will perceive Facebook to have a greater impact on the quality of their relationship with a specific Facebook Friend.

## METHOD

In order to compare usage characteristics across a diverse set of relational dyads, 3000 non-faculty staff at a large U.S. university were invited, via email, to participate in an online survey regarding their use of Facebook in October 2012. The invitation email stated that having a Facebook account was a requirement for participation. The survey remained open for two weeks and garnered 415 responses. Respondents were generally female (76.2%), 44 years old ( $SD=11.12$ ; range: 22–71), White (88.9%), and well-educated, with the majority of participants having a college degree (72.2%), and 32.5% having post-graduate training.

## Procedure

Upon providing informed consent, participants were instructed to log into their Facebook account and select a Facebook Friend for whom they would then respond to a series of questions. At the time of data collection, all profiles had been converted to the Timeline layout and a rectangular Friends box appeared in the right column immediately below the main header. Participants were told to select the person in the top left position of the Friends box to provide a pseudo-random distribution of connections (see [32] for more details). This method was chosen to move beyond the common practice of having participants select a “friend” to evaluate, which skews responses heavily toward very close ties (e.g., [30, 35]). This method appeared to be successful in creating more variance in perceived tie strength, as the closeness scale employed in the study [9] was normally distributed ( $M=2.95$ ,  $SD=1.10$  on a 5-point Likert-type scale).

After selecting a Friend for the survey, participants entered the person’s name (or a pseudonym if they so chose) and continued on with the survey. Whatever name they entered into this field auto-filled throughout the rest of the survey

for all items to reinforce that the participant should focus only on their relationship and behaviors with that one person. Participants answered questions about the frequency with which they communicated with the person on- and offline; their relational closeness, satisfaction, and access to social provisions; the specific behaviors they engaged in with the person through Facebook; the extent to which they perceived Facebook impacted their relational quality; and demographic items. Finally, participants were invited to enter their email address to be entered into a drawing for one of 20 \$25 Amazon gift cards. Email addresses were removed from the dataset prior to analysis.

## Measures

Below are details for measures included in the present study’s analyses.

### *Facebook’s Impact on Relational Outcomes*

From a corpus of 19 items, exploratory factor analysis (principal components analysis with Promax rotation) extracted two factors that captured various ways in which use of the site might make one feel closer to another Friend and maintain a relationship that might otherwise fade away without the technology (see Table 1 for items, means, and standard deviations). *Facebook’s Impact on Relational Closeness* ( $\alpha=.92$ ,  $M=2.91$ ,  $SD=.99$ ) includes five items capturing positive relational outcomes associated with Facebook use, including helping one understand a friend better, feel closer to that friend, and improving the relationship (e.g., “Facebook helps me understand (person’s name) better”). *Facebook’s Impact on Relational Stability* ( $\alpha=.83$ ,  $M=2.76$ ,  $SD=1.01$ ) includes four items that focus on the users’ perceptions of the role Facebook plays in keeping the relationship in existence (e.g., “Without Facebook, (person’s name) and I would fall out of touch”).

### *Relationship Maintenance Behaviors*

As previously noted, researchers have used Stafford and Canary’s [41] relationship maintenance measure for over two decades. While this scale has been validated [31] and applied [36, 52] in various online settings, a major limitation to this measure is that many of the individual items in the measure are predicated on geographic proximity. Furthermore, revisions to the scale (e.g., [7, 40]) have continued to stress face-to-face interactions. For example, friends who live in different cities are less likely to share tasks or engage in joint activities. A second critique of research on relationship maintenance has been its narrow focus on close, typically romantic, relationships, and the most widely used measures (e.g., [40, 41]) have focused on strategies romantically involved couples use to keep their relationship equitable. However, this becomes problematic when trying to measure relationship maintenance behaviors among a more diverse set of relationships.

A goal of the larger research project (of which this study is a part) was to evaluate existing streams of research on relationship maintenance and develop a new measure that accounted for the specific affordances of SNSs, as well as

<b>Facebook's Impact on Relational Closeness</b> ( $M=2.91, SD=.99$ )	<b>M</b>	<b>SD</b>
Facebook makes me feel closer to (person's name).	2.91	1.19
Facebook has positively impacted my relationship with (person's name).	3.08	1.14
Facebook helps me understand (person's name) better.	2.90	1.12
Interacting with (person's name) through Facebook makes me feel like I know him/her better.	2.91	1.16
Being Facebook Friends with (person's name) has improved our relationship.	2.78	1.06
<b>Facebook's Impact on Relational Stability</b> ( $M=2.76, SD=1.01$ )	<b>M</b>	<b>SD</b>
Without Facebook, (person's name) and I would fall out of touch.	2.28	1.24
Facebook is the only way I stay in touch with (person's name).	3.20	1.24
Overall, Facebook isn't very important in maintaining my relationship with (person's name).	2.80	1.17
Facebook plays an important role in maintaining my relationship with (person's name).	3.17	1.31

**Table 1: Means and standard deviations for dependent variables**

to more accurately account for the types of relationships represented in users' Facebook networks. Based on the results of the study (see [49] for details), a four-factor measure of Facebook Relationship Strategies was developed. These factors are used in all analyses.

*Supportive Communication* ( $M=3.68, SD=.82, \alpha=.88$ ) includes seven items that target specific behaviors users perform through the site to signal support for a specific Friend, such as liking a post or sending birthday wishes, and are indicative of social grooming [11], which is an important component of relationship maintenance. *Shared Interests* ( $M=2.33, SD=.88, \alpha=.87$ ) includes seven items that focus on how users engage with Facebook's features to share content and interact about commonalities they share with a Friend, whether through a Facebook Group they both belong to, through posting links on each others' Walls, or using other site features to communicate with each other. *Passive Browsing* ( $M=2.91, SD=.89, \alpha=.85$ ) includes four items that measure both the frequency and the level of agreement participants report about browsing a Friend's profile page and photo albums. As identified by Metzger et al. [34] and Burke et al. [6], passive behaviors, such as viewing a Friend's profile, are among the most common behaviors users perform on the site. *Social Information Seeking* ( $M=2.73, SD=.86, \alpha=.79$ ) includes five items tapping into two inter-related reasons for using the site: first, to keep up-to-date on individuals' more mundane

activities (i.e., everyday news), which numerous relationship maintenance researchers have highlighted as a key component to maintaining a relationship in a satisfactory state (e.g., [10]); and, second, to learn new things about the other person, which may help establish common ground and strengthen the relationship.

#### *Relational Closeness*

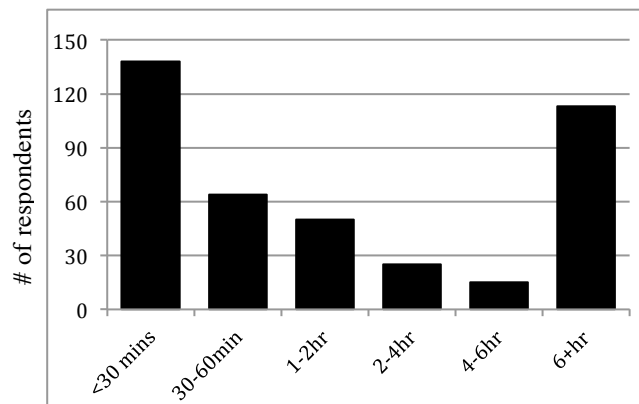
Dibble et al.'s [9] validated 10-item unidimensional relationship closeness scale was included in the instrument. Confirmatory factor analysis suggested the full, 10-item scale was not a good fit to the data, so one item was removed and several covariance paths were added between error estimates. The final, nine-item scale included in analyses ( $M=2.69, SD=.61$ ) was a good fit to the data,  $\chi^2(19)=44.64, p=.001, CFI=.994, RMSEA=.058$ , and was reliable ( $\alpha=.85$ ).

#### *Geographic Distance Between Friends*

Participants were asked to estimate how far away the selected Friend lived from among six options: (1) less than a 30-minute drive, (2) 30 minutes-1 hour drive, (3) 1-2 hour drive, (4) 2-4 hour drive, (5) 4-6 hour drive, (6) 6+ hour drive. The options were meant to provide a range of responses from in-town friends to those requiring a flight or multiple days worth of travel. Participants reported that their selected Friend lived, on average, slightly over two hours away ( $M=3.13, SD=2.05$ ), although the item exhibited a bimodal distribution, with a significant percentage of responses in the closest geographic category (33.9%) and the farthest geographic category (27.8%). See Figure 1 for a histogram of the distribution of the variable (range=1-6).

#### *Traditional Communication Frequency*

The instrument asked participants to rate the frequency with which they interacted with their selected Friend through six communication channels that were non-Facebook-specific: in-person, phone calls, text messages, email, non-Facebook instant messages, and video calls like Skype. Items were measured on a five-point scale ranging from 1=Never to 5=Very Often.



**Figure 1. Histogram of responses to geographic distance question**

Full Variable Name	Shorthand	Description
Facebook's Impact on Relational Closeness	FBClose	DV measuring extent to which use of Facebook affects perceived closeness
Facebook's Impact on Relational Stability	FBStability	DV measuring extent to which user perceives Facebook keeps relationship in existence
Supportive Communication	SuppComm	Maintenance strategy performed to signal support
Shared Interests	SharedInt	Maintenance strategy supporting a shared interest
Passive Consumption	PassCon	Maintenance strategy involving passive consumption of content
Social Information Seeking	SocialInfo	Maintenance strategy performed to learn new information and keep up-to-date on everyday information
Relational Closeness	RelCloseness	Emotional intensity of relationship
Geographic Closeness	GeoCloseness	Geographic proximity between two people
Traditional Communication Frequency	Identified by behavior	Frequency of engagement in face-to-face, phone calls, text messages, email, IM, and video calls with Facebook Friend (measured individually)
Facebook Communication Frequency	Identified by behavior	Frequency of engagement in private messages, Chat, private Groups, Wall posts, comments, Likes, profile browsing, photo album browsing, and viewing Friend's content in their News Feed (measured individually)
Facebook as Primary Communication	FBPrimary	Computed variable derived for H3 and H4 analysis that only includes subset of sample that scores highest on FBComm and lowest on TradComm (see Findings section).

**Table 2: Summary of variables used in analyses**

#### *Facebook Communication Frequency*

Participants were asked to rate the frequency with which they interacted with the specified Facebook Friend through six public and private channels (private messages, Chat, private Groups, Wall posts, comments, and Likes), as well as three passive behaviors (profile browsing, photo album browsing, and viewing the Friend's content in their News Feed) on a five-point scale ranging from 1=Never to 5=Very Often.

#### **Analysis**

See Table 2 for a summary of all variables included in analyses. As noted in the Measures section, the geographic distance measure is bimodally distributed, with 61.7% of participants describing their selected Friend as living either geographically proximate (i.e., within a 30-minute drive; 33.9%) or very far away (i.e., greater than a six-hour drive away; 27.8%). This suggests that treating it as an interval variable would likely cause misleading results. Furthermore, many of analyses in this study control for relational closeness; as seen in Scheffe post-hoc analyses of an ANOVA comparing means for geographic and relational closeness, there is no statistically significant relationship between these two variables. Therefore, because such a large percentage of respondents evaluated Friends at one of the two extremes (geographically proximate vs. geographically distant), these cases were isolated and a new variable was computed to examine differences in engagement in relationship maintenance strategies and relational outcomes between Friends who live near one another and those who live very far apart.

But isolating these two extremes leaves out over one-third of the responses and ignores a wide range of (physical) distance—Friends that might be reached in a day, but getting there requires a significant time investment. These are ties who may live in the same state but not in the same city, or in a neighboring state. If we only look at the extremes, it becomes harder to address the question of whether the findings regarding Facebook's potential effect on relational quality increases with distance or is more of an all-or-nothing phenomenon (i.e., if you live nearby, Facebook won't help; if you don't live nearby, it will). Therefore, an ANOVA was run first using a three-item geographic distance variable and including the middle group of participants (those rating a Friend who lived at least 30 minutes but less than six hours away). Scheffe post-hoc analyses revealed no differences across the three groups for the four relationship maintenance variables; however, significant differences were observed for the two relational outcomes, with Facebook's perceived impact increasing with each step except between the mid-distance and farthest distance for Facebook's impact on relational closeness. Therefore, when testing relationships between geographic distance and these two outcome variables, the three-item variable will be used.

#### **FINDINGS**

##### *RQ1: Communication frequency*

The research question addressed differences in communication patterns between geographically proximate and long-distance Friends. To answer this question, I first ran a series of independent samples t-tests using the

dichotomous distance variable as the grouping variable. Results indicated no significant differences for any of the nine Facebook communication behaviors. However, when looking at engagement in non-Facebook based communication behaviors (which is not directly assessed in the RQ), significant differences did emerge, with geographically proximate Friends more likely to meet face-to-face, talk on the phone, send text messages, email, and IM. Geographically distant Friends were slightly more likely to use a video chat service like Skype.

These results may have been influenced by participants' relational closeness to the Friend they were evaluating, which was negatively correlated with the dichotomous geographic distance variable ( $r=-.17, p<.01$ ). Therefore, a series of follow-up ANCOVAs were run to control for relational closeness while comparing means for each of the Facebook communication behaviors. Of the nine, only commenting on a Friend's Wall ( $F(6, 244)=3.21, p<.01, R^2=.05$ ) and browsing a Friend's photo album ( $F(6, 244)=5.26, p<.001, R^2=.09$ ) were statistically significant while controlling for relational closeness. In both cases, these behaviors were performed more frequently by participants responding about a Friend who lived more than six hours away.

#### *H1 & H2: Geographic proximity and relationship maintenance strategies*

H1 and H2 tested the relationship between engagement in four relationship maintenance strategies and geographic proximity, as well as the relationship between physical distance and the role users see Facebook playing in their relationship.

Looking at the four relationship maintenance strategies, independent samples t-tests revealed significantly higher engagement in Passive Consumption ( $M=3.06, SD=.80$  vs.  $M=2.81, SD=.94$ ),  $t(248.69)=-2.33, p<.05$ , and Social Information Seeking ( $M=2.85, SD=.85$  vs.  $M=2.60, SD=.88$ ),  $t(249)=-2.25, p<.05$  amongst geographically distant Friend dyads. There were no significant differences observed in engagement in the Supportive Communication or Shared Interests strategies. This provides only partial support to H1. In order to account for the potential impact of relational closeness on engagement in these strategies, a MANCOVA was conducted with the four relationship maintenance strategies as dependent variables. Findings indicated a significant effect of geographic distance on engagement in relationship maintenance strategies while controlling for relational closeness, Wilks'  $\Lambda = .91, F(4, 244)=4.847, p<.001, \eta^2=.090$ . In examining the between-subjects effects, Supportive Communication,  $F(1, 248)=4.58, p<.05, \eta^2=.02$ ; Passive Consumption,  $F(1, 248)=17.19, p<.001, \eta^2=.07$ ; Social Information Seeking,  $F(1, 248)=5.49, p<.05, \eta^2=.02$ ; and Facebook Communication Frequency,  $F(1, 248)=4.76, p<.05, \eta^2=.02$ , were significant. Therefore, when controlling for relational closeness, support for H1 should be revised, being

supported for all strategies but Shared Interests.

A similar process was used for the two relational outcomes. Results from ANOVAs show that, first, as the distance between dyads increases, participants generally perceived Facebook to have a larger impact on their relational closeness ( $M=2.70, SD=1.02$  for the closest Friends,  $M=2.97, SD=1.00$  for the middle group, and  $M=3.11, SD=.89$  for the furthest Friends),  $F(2, 402)=5.78, p<.01$ . Scheffe post-hoc analyses, however, show that the only significant ( $p<.05$ ) difference between groups is between the closest and furthest group. Second, when looking at relational stability, the difference is even stronger ( $M=2.31, SD=.91$  for the closest Friends,  $M=2.86, SD=.88$  for the middle group, and  $M=3.17, SD=1.04$  for the furthest Friends),  $F(2, 402)=24.42, p<.001$ . Here, Scheffe post-hoc tests show significant differences between each step. Next, using MANCOVA analyses to control for the effect of relational closeness, geographic distance emerges as a significant predictor in the model, Wilks'  $\Lambda = .90, F(3, 401)=10.91, p<.001, \eta^2=.052$ . Geographic distance remains significant for both Facebook's Impact on Relational Closeness,  $F(1, 403)=6.94, p<.01, \eta^2=.017$  and Facebook's Impact on Relational Stability,  $F(1, 403)=45.15, p<.001, \eta^2=.125$ , providing support for H2.

#### *H3 & H4: Facebook as a primary form of communication*

In order to create a measure that accurately reflects the subset of users for whom Facebook is most likely to be seen as the primary form of communication, both frequency of communication through traditional and Facebook channels must be considered. First, composite variables for Traditional Communication and Facebook Communication were created by running exploratory factor analysis on the individual behaviors (once for traditional communication behaviors and once for Facebook communication behaviors), creating two new variables: TradComm ( $\alpha=.85, M=2.36, SD=1.01$ ) measures frequency of in-person, phone calls, text messages, and email, while FBComm ( $\alpha=.908, M=2.92, SD=.98$ ) measures frequency of engagement in public interactions (Wall posts, comments, and Likes) with a Facebook Friend.

Next, the data were explored to find the optimal "cut-point" to divide the data between the group of users who would be defined as primarily Facebook communicators and everyone else. This process was complicated by the large number of cases at specific frequencies (e.g., 21.8% of participants' Facebook communication frequency score was a 3). See Table 3 for a breakdown of the two variables into deciles. Furthermore, as the computed measure needed to account for low interaction through traditional communication channels and high interaction through Facebook communication channels, this further limited the number of cases. Several variables were tested using different ranges of TradComm and FBComm scores; for analyses, a measure was constructed including cases where participants reported, on average, communicating with their

		TradComm	FBComm
	<b>Mean</b>	2.358	2.916
	<b>Median</b>	2.250	3.000
	<b>Standard Deviation</b>	1.006	.9780
	10 <sup>th</sup>	1.000	1.666
	20 <sup>th</sup>	1.250	2.000
	30 <sup>th</sup>	1.750	2.334
	40 <sup>th</sup>	2.000	3.000
	50 <sup>th</sup>	2.250	3.000
	60 <sup>th</sup>	2.500	3.000
	70 <sup>th</sup>	2.750	3.335
	80 <sup>th</sup>	3.250	3.666
	90 <sup>th</sup>	3.750	4.000

**Table 3: Deciles for TradComm and FBComm variables**

selected friend at a score below 2.25 for the traditional communication measure (where 1=never, 2=rarely and 3=sometimes) and a score above 3 for the Facebook communication measure (where 4=often and 5=very often). Scores below 2.25 on traditional communication comprised the lowest 45.5% of responses, while scores above 3 on Facebook communication comprised the highest 38.6% of responses. Fifty-two participants (12.8% of the full sample) met both requirements.

Once the variable was computed, independent samples t-tests were conducted to test for differences in engagement in the four relationship maintenance strategies using “Facebook as Primary Communication” (FBPrimary) as the grouping variable. Results indicated that those who primarily interact with a Facebook Friend through public, site-based communication engage in a greater amount of Supportive Communication ( $M=4.02, SD=.45$  vs.  $M=3.64, SD=.85$ ),  $t(114.11)=-5.00, p<.001$ ; Passive Consumption ( $M=3.14, SD=.84$  vs.  $M=2.88, SD=.88$ ),  $t(405)=-2.01, p<.05$ ; and Social Information Seeking ( $M=3.24, SD=.80$  vs.  $M=2.65, SD=.84$ ),  $t(405)=-4.81, p<.001$ , when compared with the rest of the sample, providing partial support for H3. To test whether this finding held when taking into consideration one’s level of relational closeness, which was significantly lower for those who primarily interacted through Facebook ( $M=2.69, SD=.61$ ) compared with those who did not ( $M=2.98, SD=1.15$ ),  $t(112.74)=2.80, p<.01$ , a MANCOVA was conducted including the four maintenance strategies as dependent variables, FBPrimary as the fixed factor, and Relational Closeness as a covariate. MANCOVA was used rather than separate ANCOVAs due to the moderate correlations between the four relationship strategies ( $r=.46-.57$ ; see [46]). Results indicated that, even when controlling for relational closeness, a significant difference exists between those who primarily interact through Facebook and the rest

of the sample, Wilks’  $\Lambda=.92, F(4, 401)=8.94, p<.001, \eta^2=.082$ . As with the previous analysis, significant differences were found for Supportive Communication,  $F(1, 404)=21.01, p<.001, \eta^2=.050$ ; Passive Consumption  $F(1, 404)=11.22, p<.001, \eta^2=.027$ ; and Social Information Seeking strategies,  $F(1, 404)=25.45, p<.001, \eta^2=.059$ .

Finally, to test whether individuals who primarily use Facebook to interact with a specific Friend perceive the site as having a greater impact on their relational closeness and relational stability, independent samples t-tests show that those primarily interacting through Facebook see the site as positively impacting how close they feel to that person ( $M=3.34, SD=.93$  vs.  $M=2.85, SD=.98$ ),  $t(405)=-3.41, p<.001$  and that relationship’s stability ( $M=3.52, SD=.81$  vs.  $M=2.65, SD=.99$ ),  $t(405)=-6.88, p<.001$ , when compared with the rest of the sample, supporting H4. A MANCOVA conducted on the two dependent variables to control for the effect of relational closeness was also significant, Wilks’  $\Lambda=.93, F(2, 403)=16.44, p<.001, \eta^2=.075$ . Both Facebook’s Impact on Relational Closeness,  $F(1, 404)=13.28, p<.001, \eta^2=.032$  and Facebook’s Impact on Relational Stability,  $F(1, 404)=32.95, p=.001, \eta^2=.075$  were significantly higher for those who primarily communicated through Facebook, even when controlling for their reported level of relational closeness.

## DISCUSSION

This research extends our understanding of relationship maintenance processes in the age of “social supernets” in several important ways. Notably, while engagement in these Facebook-based maintenance strategies is generally correlated with relational closeness, findings from statistical analyses suggest that one’s closest relationships do not benefit the most from being connected on the site; rather, those who primarily rely on Facebook as their source of communication and those who live at a greater physical distance from each other see the site as having the greatest positive impact on the quality of their relationship. In this way, while Facebook may serve a supplemental role for closer relationships—similar to Hampton and Wellman’s [23] findings about email more than a decade ago—findings suggest the site may actually serve to enhance the quality of weaker relationships and prevent those connections from fading away completely.

While face-to-face interactions are best for some kinds of relationships [12, 13], research has consistently shown over the last decade that CMC serves a supplemental role in maintaining relationships, especially when other forms of communication are unavailable (e.g., [2, 23, 47]). This study goes a step further by considering the entire spectrum of relationships individuals maintain through CMC rather than focusing solely on close-tie maintenance, as has been the focus of previous work (e.g., [25, 30, 35]). First, looking at engagement in relationship maintenance strategies, we find those who live farther away and communicate primarily through Facebook report



significantly higher engagement in Supportive Communication, Passive Consumption, and Social Information Seeking. As these strategies are not limited to collocated behaviors in the same way that Stafford and Canary's [41] measures were, there was little risk of that impacting engagement, with the exception of Shared Interests; the physical proximity required for certain types of activities related to common interests (e.g., baseball fans going to a game together) may limit its effect size, although it is important to note that the wording of the items for this strategy specifically avoided offline components.

These two categories—Facebook as Primary Communication and Geographic Distance—were also analyzed to determine whether differences emerged in the extent to which participants believed their use of the site positively affected the quality of their relationship with that Friend through two measures, one assessing relational closeness and one assessing relational stability. Again, findings indicate that, regardless of one's existing level of relational closeness, those who rely primarily on Facebook to interact with a specific Facebook Friend and those who live very far from that Friend see Facebook as playing a much more significant role in their relationship. In fact, when looking at relational stability, one does not even need to live very distant at all, but merely not be within the same town and an effect can be seen. For these Friends, Facebook may be the difference between a relationship in existence and the memory of that relationship. Because these people have chosen to rely on mediated channels to interact—whether because of a physical distance separating them, the convenience of quick updates and content browsing, or another reason—Facebook's role has transformed from mere intermediary to (oftentimes) the sole source connecting these people.

If we consider Facebook's affordances and the benefits of using the site for relationship maintenance rather than other forms of (mediated or non-mediated) communication, Facebook serves as a virtual, networked rolodex that auto-updates every time a user enters new information. Even if that user has not entered direct contact information such as an email address, as long as the technical connection between two Friends exists, communication can take place. This process is much more complicated without tools like Facebook, where the impetus is on the individual to update their files with new contact information when a friend moves, or gets married and changes her last name, or gets a new phone. Of course, if this information is needed but not available through Facebook, it can be requested—on channel or off—but the important takeaway here is that while our social contacts' personal information is constantly changing over time, Facebook has reduced the effort associated with organizing, editing, and updating that information to a single component: the Friend link. This argument has received additional support in previous empirical work by Steinfield and colleagues [43], whose qualitative interviews with college students highlighted the

instrumental role of Friending as a way to keep in touch with those contacts one might wish to interact with at some point in the future, and Ellison et al. [17], who found that students' emotional connection to the site (i.e., "Facebook Intensity") positively predicted their use of the site to keep in touch with high school friends (i.e., "maintained social capital").

The findings presented here also echo recent work by Keith Hampton and colleagues [22], who present a convincing argument for the *persistent* and *pervasive* nature of ICTs like Facebook, going so far as to suggest that "ICTs afford relationship maintenance in ways that reduce the likelihood that ties will ever become completely dormant" (p. 1046). When the cost to remove a social tie from one's social network is higher than simply allowing it to remain, ignored or perhaps hidden, users have little motivation to delete someone once they become Facebook Friends. Furthermore, Facebook has raised awareness about an issue that Hampton et al. [22] describe in terms of "pervasive awareness" while Vitak [51] and others have framed it in terms of "context collapse": the idea that SNS users broadcast content across numerous social contexts, and that this breakdown in the existing relational structures that is so inherent in our offline self-presentation (e.g., work, church, hometown, spouse) may raise a number of relational issues. Context collapse is facilitated by SNSs' affordances, including the visibility and persistence of content, as well as the association of people (e.g., Friends of Friends) and the association of content (e.g., tagging, retweeting).

A final consideration in light of these findings is to reflect on how they speak to Haythornthwaite's [24] work on media multiplexity, a simple construct that posits that tie strength is positively correlated with the quantity of communication channels a dyad uses. The findings here suggest that, while Facebook may be important for some close-tie dyads, it is unlikely these ties would see their relationship fall apart if they lost access to the site. For many weaker relationships—and even closer relationships separated by geographic distance—Facebook can become more than the supplement that email was a decade ago [23]. Perhaps this is because, as Tong and Walther [46] suggest, SNSs' features foster feedback, participation, and interactivity, and allow users to embed a variety of multimedia sources. Finally, as described in this paper, users can keep in contact from a distance through passive strategies, which also helps foster the maintenance of weak ties. Facebook's technical structure—and especially the News Feed—keep users on top of their network's activity. One of the most interesting questions for future research will be if this constant stream of content reduces the need for other interaction among certain types of connections and, if so, how the technology reshapes media multiplexity.

#### *Limitations*

The analyses provided in this study assess correlations between variables and cannot establish causality. While the

sample in this study was generally representative of the population, the population itself is not representative of Facebook users, especially in terms of education. Therefore, other populations' engagement in these strategies and their perceived impact on relational outcomes should be assessed to determine if similar results occur with different types of users. For example, research has identified that college students' network composition is substantively different from non-students in terms of the number of "actual friends" (see [17, 18]). Likewise, this sample was highly skewed toward White users; however, Pew Internet data show that minorities are slightly more likely to use SNSs as Whites [5] and are more likely to access SNSs through mobile devices [38], which could impact the strategies they employ. Finally, the use of an ordinal variable to measure geographic distance may have over-simplified the relationship between geographic distance and the other variables examined. A more nuanced examination is warranted in future studies.

## CONCLUSION

This study has addressed questions related to relationship maintenance in the Facebook age by showing that, while relational closeness is positively correlated with engagement in relationship strategies, specific types of Friend dyads are more likely to use these strategies and, consequently, benefit from their engagement. Specifically, those who rely on Facebook as their primary communication channel and those who live farther away both engage in these strategies to a greater extent and view Facebook as having a greater impact on their relational closeness and stability than those who communicate through other channels, and those who live close to each other.

When considering these findings in light of the structure of the website, it becomes clear that Facebook should make strides to identify and encourage interaction between dyads who may benefit from communication on the site. A straightforward approach to this would be to begin showing more content from Friends after a user visits their profile page. A more difficult problem would be to predict who a Facebook user might *want* to interact with; one way this could be done would be by comparing interaction patterns with mutual Friends and then increasing prominence in the News Feed. Facebook may also consider testing features that suggest users visit a Friend's profile or interact with a Friend in some way, although these may be viewed as invasive and would need to be pre-tested. In the end, however, these types of analyses would be beneficial to Facebook's overarching goal and having users generate more content via increased interactions.

Finally, these findings provide significant evidence for the supportive role Facebook plays in maintaining the wide range of weaker connections that comprise the majority of most users' Friend networks. The site's features—most notably the straightforward nature through which a

relationship is articulated, the simple presentation of content in reverse chronological order and the ease of communicating with other users through a wide range of behaviors representing various degrees of engagement and time commitment—have significantly impacted how we maintain relationships in the digital age. Returning to Dunbar's suggestion, as quoted in the introduction, that Facebook may help slow the pace of relational decay, these findings go even further by suggesting that individuals not only see the site as a repository to store contacts, but as an interactive forum that improves the quality of relationships, and specifically benefits weaker and more distant ties.

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## REFERENCES

1. Baym, N.K., Zhang Y.B., Kunkel, A., Ledbetter, A., and Lin, M. Relational quality and media use in interpersonal relationships. *New Media Society* 9 (2007), 735-752.
2. Baym, N.K., Zhang, Y.B., and Lin, M.-C. Interpersonal communication on the internet, telephone and face-to-face. *New Media & Society* 6 (2004), 299-318.
3. Boneva, B., Kraut, R., and Frohlich, D. Using e-mail for personal relationships: The difference gender makes. *American Behavioral Scientist*, 45 (2001), 530-549.
4. Brandtzaeg, P.B. Social networking sites: Their users and social implications—a longitudinal study. *Journal of Computer-Mediated Communication* 17 (2012), 467-488.
5. Brenner, J. and Smith, A. *72% of Online Adults Are Social Networking Site Users*. Pew Internet Project, 2013.
6. Burke, M. Kraut, R. and Marlow, C. Social capital on Facebook: Differentiating uses and users. In *Proc. CHI*, ACM Press (2011), 571-580.
7. Canary, D. J., and Stafford, L. Relational maintenance strategies and equity in marriage. *Communication Monographs* 59 (1992), 243-267.
8. Dainton, M., and Aylor, B. Patterns of communication channel use in the maintenance of long-distance relationships. *Communication Research Reports* 19 (2000), 118-129.
9. Dibble, J.L., Levine, T.R., and Park, H.S. The unidimensional relationship closeness scale (URCS): Reliability and validity evidence for a new measure of relationship closeness. *Psychological Assessment* 24 (2012), 565-572.

10. Dindia, K. Definitions and perspectives on relational maintenance communication. In D.J. Canary and M. Dainton, eds., *Maintaining Relationships Through Communication: Relational, Contextual, and Cultural Variations*. Lawrence Erlbaum, Mahwah, NJ, 2003, 51-77).
11. Donath, J.S. Signals in social supernets. *Journal of Computer-Mediated Communication* 13 (2007), 231-251.
12. Duck, S. *Relating to Others*. Open University Press, Milton Keynes, UK, 1988.
13. Duck, S., and Pittman, G. Social and personal relationships. In M.L. Knapp and G.R. Miller, eds., *Handbook of Interpersonal Communication (2nd ed.)* Sage, Thousand Oaks, CA, 1994, 676-695.
14. Duggan, M., and Brenner, J. *The Demographics of Social Media Users — 2012*. Pew Internet Project, 2013.
15. Dunbar, R. I. M. (2011, June). How many “friends” can you really have? *IEEE Spectrum*, 81, 83.
16. Ellison, N., Steinfield, C., and Lampe, C. The benefits of Facebook “friends”: Exploring the relationship between college students’ use of online social networks and social capital. *Journal of Computer-Mediated Communication* 12 (2007), 1143-1168.
17. Ellison, N.B., Steinfield, C. and Lampe, C. Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society* 13 (2011), 873-892.
18. Ellison, N., Vitak, J., Gray, R., and Lampe, C. Cultivating social resources: The relationship between bridging social capital and Facebook use among adults. *Journal of Computer-Mediated Communication*, (in press).
19. Gilbert, E. and Karahalios, K. Predicting tie strength with social media. In *Proc. CHI*, ACM Press (2011), 211-220.
20. Gunn, D. O., and Gunn, C. W. Electronic relationship maintenance processes. Paper presented at the annual meeting of the Association of Internet Researchers, Lawrence, KS, 2000.
21. Hampton, K., Goulet, L.S., Rainie, L., and Purcell, K. Social Networking Sites and Our Lives. Pew Internet Project, 2011.
22. Hampton, K.N., Lee, C.J., and Her, E.J. How new media affords network diversity: Direct and mediated access to social capital through participation in local social settings. *New Media & Society* 13, (2011), 1031-1049.
23. Hampton, K., and Wellman, B. Long distance community in the network society: Contact and support beyond Netville. *American Behavioral Scientist* 45 (2001), 476-495.
24. Haythornthwaite, C. Social networks and Internet connectivity effects. *Information, Communication & Society* 8 (2005), 125-147.
25. Johnson, A.J. Examining the maintenance of friendships: Are there differences between geographically close and long-distance friends? *Communication Quarterly* 49 (2001), 424-435.
26. Johnson, A.J., Haigh, M.M., Becker, J.A.H., Craig, E.A., and Wigley, S. College students’ use of relational management strategies in email in long-distance and geographically close relationships. *Journal of Computer-Mediated Communication* 13 (2008), 381-404.
27. Johnson, A.J., Becker, J., Craig, E., Gilchrist, E., and Haigh, M. Changes in friendship commitment: Comparing geographically close and long-distance young-adult friendships. *Communication Quarterly* 57 (2009), 395-415.
28. Joinson, A.N. (2008). “Looking at”, “looking up,” or “keeping up with” people? Motives and uses of Facebook. In *Proc. CHI*, ACM Press (2008), 1027-1036.
29. Lampe, C., Ellison, N., and Steinfield, C. A Face(book) in the crowd: Social searching vs. social browsing. In *Proc. CSCW*, ACM Press (2006), 167-170.
30. Ledbetter, A.M. Measuring online communication attitude: Instrument development and validation. *Communication Monographs* 76 (2009), 463-486.
31. Ledbetter, A. Assessing the measurement invariance of relational maintenance behavior when face-to-face and online. *Communication Research Reports* 27 (2010), 30-37.
32. Ledbetter, A.M., Mazer, J.P., DeGroot, J.M., Meyer, K.R., Mao, Y., and Swafford, B. Attitudes toward online social connection and self-disclosure as predictors of Facebook communication and relational closeness. *Communication Research* 38 (2011), 27-53.
33. Lenhart, A. *Adults and Social Network Websites*. Pew Internet Project, 2009.
34. Metzger, M.J., Wilson, C., Pure, R.A., and Zhao, B.Y. Invisible interactions: What latent social interaction can tell us about social relationships in social network sites. In D. Comunello, ed., *Networked Sociability and Individualism: Technology for Personal and Professional Relationships*. IGI Global, Hershey, PA, 2012, 79-103.
35. Miczo, N., Mariani, T., and Donahue, C. The strength of strong ties: Media multiplexity, communication motives, and the maintenance of geographically close friendships. *Communication Reports* 24 (2011), 12-24.
36. Rabby, M.K. Relational maintenance and the influence of commitment in online and offline relationships. *Communication Studies* 58 (2007), 315-337.

37. Ramirez, A., and Broneck, K. 'IM me': Instant messaging as relational maintenance and everyday communication. *Journal of Social and Personal Relationships* 26 (2009), 291-314.
38. Smith, A. *Mobile Access 2010*. Pew Internet Project, 2010.
39. Stafford, L. *Maintaining Long-Distance and Cross-Residential Relationships*. Lawrence Erlbaum, Mahwah, NJ, 2005.
40. Stafford, L. Measuring relationship maintenance behaviors: Critique and development of the revised relationship maintenance behavior scale. *Journal of Social and Personal Relationships* 28 (2010), 278-303.
41. Stafford, L., and Canary, D.J. Maintenance strategies and romantic relationship type, gender, and relational characteristics. *Journal of Social and Personal Relationships* 8 (1991), 217-242.
42. Stafford, L., Kline, S.L., and Dimmick, J. Home e-mail: Relational maintenance and gratification opportunities. *Journal of Broadcasting and Electronic Media*, 43 (1999), 659-669.
43. Steinfield, C., Ellison, N.B., and Lampe, C. Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology* 29 (2008), 434-445.
44. Tabachnick, G.G., and Fidell, L.S. *Experimental Designs Using ANOVA*. Duxbury, Belmont, CA, 2007.
45. Thelwall, M. and Wilkinson, D. Public dialogs in social network sites: What is their purpose? *Journal of the American Society for Information Science and Technology* 61 (2010), 392-404.
46. Tong, S., and Walther, J.B. (2011). Relational maintenance and CMC. In K.B. Wright and L.M. Webb, eds., *Computer-Mediated Communication in Personal Relationships*. Peter Lang Publishing, New York, 98-118.
47. Valkenburg, P.M., and Peter, J. The effects of instant messaging on the quality of adolescents' existing friendships: A longitudinal study. *Journal of Communication* 59 (2009), 79-97.
48. Viswanath, B., Mislove, A., Cha, M., and Gummadi, K. P. On the evolution of user interaction in Facebook. In *Proc. ACM workshop on online social networks*, ACM Press (2009) 37-42.
49. Vitak, J. Keeping connected in the Facebook age: The relationship between Facebook use, relationship maintenance strategies, and relational outcomes. PhD dissertation, Michigan State University. East Lansing, MI.
50. Vitak, J. The impact of context collapse and privacy on social network site disclosures. *Journal of Broadcasting and Electronic Media* 56 (2012), 451-470.
51. Vitak, J., and Kim, J. "You can't block people offline": Examining how Facebook's affordances shape the disclosure process. In *Proc. CSCW*, ACM Press (2014).
52. Wright, K.B. Online maintenance strategies and perceptions of partners within exclusively Internet-based and primarily Internet-based relationships. *Communication Studies* 55 (2004), 239-253.