Self-disclosure and new communication technologies: The implications of receiving superficial self-disclosures from friends

Stephen A. Rains
Steven R. Brunner
Kyle Oman
University of Arizona, USA

Abstract

The reported study examined the implications of receiving superficial self-disclosures from a friend. A total of 199 adults reported on communication episodes initiated by a friend during the previous 7 days via five communication technologies and completed measures of liking, relationship satisfaction, and willingness to provide social support to their friend. The results revealed significant interactions between the total volume of self-disclosures received and proportion of superficial disclosures for liking and relationship satisfaction. Among respondents who received a relatively greater volume of self-disclosures, the proportion of superficial disclosures received was inversely associated with relationship satisfaction and liking. Perceived costs mediated the preceding relationships.

Keywords

Communication technology, personal relationships, self-disclosure

Corresponding author:
Stephen A. Rains, Department of Communication, University of Arizona, Tucson, AZ 85721, USA.
Email: srains@email.arizona.edu

Self-disclosure plays an integral role in the development and maintenance of personal relationships (Altman & Taylor, 1973; Derlega, Metts, Petronio, & Margulis, 1993). Although research on this topic has a long and rich history (e.g., Cozby, 1973; Jourard, 1971; Kim & Dindia, 2011; Petronio, 2002), relatively few studies have investigated superficial self-disclosure—defined as "public or non-intimate information about [one's] self" (Dindia, 1997, p. 412). Yet social penetration theory (Altman & Taylor, 1973) and theories of social exchange (Homans, 1958; Thibaut & Kelly, 1959) suggest that superficial disclosures may have important consequences in personal relationships. Moreover, scholars have noted the potential of new communication technologies for sharing trivial content (Miller, 2008; Tong & Walther, 2011), and recent content analyses have demonstrated that superficial information is routinely disclosed using several different technologies (Dann, 2010; Lee, 2011; Oulasvirta, Lehtonen, Kurvinen, & Raento, 2010; Rettie, 2009). This study attempts to better understand the implications of superficial disclosure in personal relationships by examining the outcomes associated with receiving superficial self-disclosures from friends via five communication technologies.

Literature review

Self-disclosure and new communication technologies

Self-disclosure is generally defined as intentionally revealing information about one's self to others (Derlega et al., 1993). Research conducted to date suggests that self-disclosure can produce positive outcomes in personal relationships. Collins and Miller (1994), for example, conducted a meta-analysis of 50 studies and reported a positive association between self-disclosures received and liking. Sources who disclosed a greater amount were liked more by disclosure recipients. Additionally, relationship satisfaction (Meeks, Hendrick, & Hendrick, 1998; Sprecher & Hedrick, 2004) and social support (Derlega et al., 1993; Foynes & Freyd, 2013) have been identified as important outcomes related to self-disclosure. Self-disclosure is a mechanism through which one can marshal support from one's social network and can serve as a reward that results in increased relationship satisfaction.

There is widespread agreement that depth is a key dimension of self-disclosure (Altman & Taylor, 1973; Cozby, 1973; Derlega et al., 1993; Petronio, 2002). Self-disclosure can vary in the degree to which it involves relatively trivial or intimate issues. Yet much of the scholarship examining disclosure in the context of personal relationships has focused on intimate disclosures (for reviews, see Dindia, 1997; Greene, Derlega, & Mathews, 2006). Although superficial disclosures have received relatively less attention (e.g., Vangelisti & Banski, 1993), social penetration theory (Altman & Taylor, 1973, pp. 135–141) recognizes that superficial disclosure can play an important role in both more and less developed relationships. Superficial disclosures can serve to help maintain relationships and foster relationship development. Furthermore, new communication technologies have made trivial or superficial self-disclosure involving nonintimate information an increasingly valuable topic to consider.

Researchers studying the social implications of new communication technologies have noted their potentially significant consequences in personal relationships. Haythornthwaite's (2005) ideas about media multiplexity suggest that strong-tie relationships such as friendships are in part defined by the use of multiple communication technologies for interaction. Katz and Aakhus's (2002) notion of perpetual contact is rooted in the premise that new communication technologies (particularly mobile phones) have created opportunities for individuals to be accessible—and expectations that they will be accessible (Pettigrew, 2009)—to one another at virtually all times. Both of these ideas have direct implications for scholarship examining self-disclosure in personal relationships. Given the expectations for contact that are associated with new communication technologies (Katz & Aakhus, 2002) and the potential for individuals in close relationships to interact using multiple technologies (Haythornthwaite, 2005; Ledbetter, 2009), it is perhaps not surprising that several scholars have noted the potential utility of new communication technologies for self-disclosure (Joinson & Payne, 2007; Kim & Dindia, 2011; Ruppel, in press)—and, in particular, sharing mundane details about oneself (Joinson, Houghton, Vasalou, & Marder, 2011; Miller, 2008; Radovanovic & Ragnedda, 2012; Tong & Walther, 2011; Turkle, 2008).

Although some scholars have argued that new communication technologies have directly led to greater amounts of superficial disclosure (Miller, 2008), we could find no empirical evidence to support such a claim. Nonetheless, there is reason to believe that several new communication technologies have made superficial self-disclosures more visible (Tong & Walther, 2011). Individuals are able to view a log of their interactions and, in many cases, see the content of their exchanges over a period of time. Additionally, there is at least some evidence that superficial or mundane information is routinely disclosed using technologies such as social network sites (Lee, 2011) and microblogs (Dann, 2010; Oulasvirta et al., 2010). Messages addressing users' present activity and messages involving events in users' everyday lives were among the most common in the corpus of social network site status updates examined in one study (Lee, 2011). Content analyses of text messages (Rettie, 2009) offer additional evidence regarding the presence of superficial disclosures. Almost 60% of the text messages analyzed by Rettie (2009, p. 1135) were coded as "phatic one-liners." Beyond identifying their existence, however, relatively little research has considered the potential consequences of superficial disclosures in personal relationships. To better understand the implications of superficial self-disclosures communicated via new communication technologies, we next consider the rewards and costs of receiving superficial self-disclosure to provide a foundation for the hypotheses.

Self-disclosure reception

Social penetration theory (Altman & Taylor, 1973) and theories of social exchange (for a review, see Roloff, 1981) offer a useful foundation from which to examine the implications of receiving superficial self-disclosures. Social penetration theory (Altman & Taylor, 1973) assumes that the nature of self-disclosure changes as relationships develop. Whereas disclosure in the early stages of relationship development is typified by superficial information, intimate self-disclosure becomes more common during later

stages. The affective exchange and stable change phases of development described by Altman and Taylor (1973), which characterize relationships among friends, are marked by the exchange of both superficial and intimate disclosures.

Social penetration theory is rooted in a social exchange framework (e.g., Homans, 1958; Thibaut & Kelly, 1959) and articulates the role of costs and rewards in the development of personal relationships. Self-disclosure is hypothesized to serve as a source of immediate costs and rewards as well as a means for forecasting future costs and rewards. Altman and Taylor (1973, p. 32) draw from Homan's (1958) work and generally define rewards in terms of ''a positive exchange of objects, symbolic signs, and attitudes and feelings'' and costs as resulting from ''negative experiences which derive from an aversive stimulus or from the withdrawal of a pleasant one.'' They contend that the reward/cost ratio is an important factor to consider in relationships, arguing that a positive association exists between the ratio of rewards to costs and relationship satisfaction.

In the context of more developed relationships such as friendships, receiving superficial disclosure might represent a reward or a cost. Superficial disclosures could be rewarding because they serve as a mechanism through which people learn about one another and relationships become more intimate (Altman & Taylor, 1973, pp. 27–58). Receiving disclosure also implies that one is liked by the discloser (Worthy, Gary, & Kahn, 1969). Finally, gaining information in the form of superficial disclosures might be rewarding in that it can reduce uncertainty and allow one to better predict the discloser's behavior (Berger & Calabrese, 1975).

Yet superficial disclosure might also represent a cost for disclosure recipients. Receiving superficial self-disclosures might be seen as an imposition on one's time and resources. Listening to or reading a friend's self-disclosure requires one to forgo other possible activities. Moreover, the expectation that one will respond to the trivial concerns of one's friend could further exacerbate the perceived restriction on one's autonomy. Such impositions on one's time are equivalent to a negative face threat in politeness theory (Brown & Levinson, 1987). Because self-disclosure can serve as a barometer of one's closeness to one's partner (Collins & Miller, 1994), superficial self-disclosure might suggest that the discloser does not feel close to the recipient. Receiving superficial self-disclosure could also tax one's emotional resources. Being asked to listen and respond supportively to a disclosure about a trivial event may serve to diminish one's motivation and ability to sympathize and empathize with the discloser (Derlega & Chaikin, 1975). Taken together, these rewards and costs suggest that superficial disclosures may have important consequences in personal relationships.

Hypotheses

Media multiplexity theory (Haythornthwaite, 2005) and the notion of perpetual contact (Katz & Aakhus, 2002) underscore the important role of new communication technologies in personal relationships and suggest that we have more opportunities to connect with one another than perhaps ever before in history. Additionally, scholars have noted the use of communication technologies to share trivial information about one's self (Joinson et al., 2011; Miller, 2008; Tong & Walther, 2011; Turkle, 2008). In this project,

we examine the outcomes associated with receiving superficial disclosures across five communication technologies that represent some of the most widely used contemporary new communication technologies (Hampton, Goulet, Rainie, & Purcell, 2011; Purcell, 2011; Smith, 2011): e-mail, mobile phone (for calling), text messaging (via mobile phone), social network websites (for status updates), and instant messaging. Liking, relationship satisfaction, and the propensity to provide social support to the discloser are the outcome variables considered in this project. Liking (Collins & Miller, 1994), relationship satisfaction (Meeks et al., 1998; Sprecher & Hendrick, 2004), and social support (Derlega et al., 1993; Foynes & Freyd, 2013) have been identified as important outcomes of self-disclosure in personal relationships and, thus, offer relevant indicators of the consequences associated with receiving superficial self-disclosures.

First, social penetration theory (Altman & Taylor, 1973) assumes that more developed relationships such as friendships are marked by greater depth and breadth of interaction relative to relationships that are less developed. Although superficial disclosures are certainly part of interactions among friends, more intimate disclosures also occur in these types of relationships. Drawing from social exchange theories (Homans, 1958; Thibaut & Kelly, 1959), social penetration theory (Altman & Taylor, 1973) further assumes that self-disclosure is associated with costs and rewards. The costs associated with superficial self-disclosures should be minimal when they are infrequent and offset by the rewards. However, costs should increase as superficial self-disclosures begin to compose a large proportion of all disclosures received from an individual. Superficial self-disclosures may be especially likely to impinge upon a receiver's time and represent a negative face threat. Moreover, the demands of being supportive in response to superficial disclosures may tax one's motivation to sympathize or empathize with the discloser. As superficial disclosures encompass a greater proportion of the total disclosures one receives from a friend across all five technologies, the reward/cost ratio outlined in social penetration theory (Altman & Taylor, 1973) may tip in favor of costs. Increased costs should be associated with less liking, lower satisfaction, and reduced willingness to provide social support to the discloser. To clarify, the argument made here is not that superficial disclosures are always problematic among friends; it is only as they begin to compose an increasingly large proportion of the total disclosures received from a friend that they become detrimental.[1]

> **Hypothesis 1 (H1):** The proportion of superficial self-disclosures received from a friend is negatively associated with (a) liking, (b) relationship satisfaction, and (c) willingness to provide social support.

Second, in considering the outcomes of superficial self-disclosure from the perspective of social penetration theory (Altman & Taylor, 1973), it seems plausible that the ultimate costs associated with superficial disclosure may depend on the total number of disclosures one receives from a friend. A large proportion of superficial disclosures may be particularly detrimental when the total volume of disclosures is large. The cumulative cost of receiving superficial disclosure in terms of demands on one's time and resources might be magnified by a large total volume of disclosures. As a result, individuals may have a particularly negative response to receiving a large proportion of superficial

disclosures when the total volume of self-disclosures they receive is large. Formally stated, the total volume of self-disclosures received across the five technologies should moderate the relationship between the proportion of superficial disclosures and liking, relationship satisfaction, and willingness to provide social support. The negative association between the proportion of superficial disclosures received and the three outcomes should be stronger among individuals who receive a relatively large total volume of self-disclosures than those who receive a relatively small total volume of disclosures.

> **Hypothesis 2 (H2):** The total volume of self-disclosures received from a friend moderates the relationship between the proportion of superficial self-disclosures received and (a) liking, (b) relationship satisfaction, and (c) willingness to provide social support.

Finally, the arguments grounding the first two hypotheses drawn from social penetration theory (Altman & Taylor, 1973) and social exchange theories (Homans, 1958; Thibaut & Kelly, 1959) assume that the reason superficial disclosures are associated with deleterious relationship outcomes is because they can represent costs for message receivers. Receivers of superficial disclosures incur costs in the form of demands on their time and emotional resources. As such, the perceived costs of being in a friendship in terms of one's time and emotional resources should mediate the relationship between the reception of superficial disclosures and the three relationship outcomes. There should be a significant indirect effect of receiving superficial disclosures on the three relationship outcomes through perceived relationship costs. Explicitly testing perceived costs as a mediator makes it possible to offer compelling evidence that perceived relationship costs explain any deleterious consequences associated with receiving superficial self-disclosures.

> **Hypothesis 3 (H3):** Perceived relationship costs mediate the associations between the proportion of superficial self-disclosures received from a friend and the three relationship outcomes.

Method

A cross-sectional survey was conducted to test the study hypotheses. Respondents completed measures evaluating the three relationship outcomes and then were asked to use the log records for the five technologies (e.g., calls received log) to report on the communication episodes initiated by a friend during the previous week. Given that the hypotheses are concerned with the total volume of disclosures received, disclosure data were standardized and then aggregated across all five technologies.

Respondents

A convenience sample of respondents was recruited using a referral procedure. Undergraduate students were given course credit for referring one adult who was neither a current student nor an employee of the university at which the study was conducted to

complete an online questionnaire. The first author sent each respondent an invitation for the study questionnaire. A total of 199 respondents sufficiently completed the questionnaire and reported receiving at least one self-disclosure during the previous week from the friend who served as the focus of the questionnaire.[2] Respondents ranged in age from 18 to 73 ($M = 38.39$, $SD = 15.21$) and 55% were female. Approximately 62% of respondents had completed college or greater education. Approximately 50% of respondents reported on self-disclosures received from a female friend and 50% reported on a male friend.

Procedure

Respondents were asked to select a friend with whom they do not live and are not currently involved romantically. This individual served as the focus for the remainder of the questionnaire; all items were completed with this friend in mind or addressed this particular friend's behavior (e.g., disclosures received from the friend). To ensure variability in the friend about which respondents reported and, as a result, the outcome measures, respondents were randomly assigned to report on a male or female who was their best friend, a close (but not best) friend, or a friend (but not close friend). After reporting the first initial of their friend's first name and some demographic information regarding their friend and relationship, respondents completed measures assessing their liking, relationship satisfaction, and willingness to provide social support to their friend. Respondents were then asked to report on their use of five different communication technologies during the previous 7 days, focusing on the communication episodes initiated by their friend.

Instrumentation

Relationship satisfaction. Five items from the Relationship Assessment Scale (RAS; Hendrick, 1988) were used to evaluate relationship satisfaction. The RAS was designed to be a general measure of relationship satisfaction. Sample items include: "How well does your friend meet your needs?" and "In general, how satisfied are you with your friendship?" Items were rated on 7-point semantic differential scales with larger values indicating greater levels of satisfaction ($M = 5.86$, $SD = .95$, $\alpha = .80$).

Willingness to provide social support. The Medical Outcomes Study (MOS) social support survey (Sherbourne & Stewart, 1991) was adapted to reflect the degree to which respondents were willing to make support available to their friend. The MOS social support survey was designed to evaluate the degree to which an individual perceives that he or she has access to various types of support. Four items from the emotional support subscale and 4 items from the informational support subscale were adapted to reflect respondents' likelihood of making each type of support available to their friend. Sample items include "I would listen to my friend when s/he needs to talk." and "I would give my friend information to help her/him understand a situation." Items were rated on a 7-point scale with the anchors *none of the time* (1) and *all of the time* (7). The emotional and informational support subscales ($r = .82$) were combined to create a single

measure reflecting each respondent's willingness to provide social support to their friend ($M = 6.31$, $SD = .87$, $\alpha = .91$).

Liking. Four items from Rubin's (1970) liking measure were used to evaluate the degree to which respondents liked their friend. Sample items include: "My friend is one of the most likeable people I know." and "My friend is the sort of person whom I myself would like to be." Items were rated on a 7-point scale with the anchors *strongly disagree* (1) and *strongly agree* (7) ($M = 5.69$, $SD = 1.04$, $\alpha = .80$).

Relationship costs. Relationship costs were measured using 5 items created for this study. Items were crafted to focus specifically on costs in terms of one's time and emotional resources. The 5 items include "My friend wastes my time talking about his/her life," "My friend shares too much with me," "My friend expects me to be more understanding of his/her concerns than I would like to be," "My friend expects me to put his/her problems or concerns before my own problems and concerns," and "My friend is demanding of my time." Items were rated on a 7-point scale with the anchors *strongly disagree* (1) and *strongly agree* (7). A mean was computed to reflect the relative costs incurred by respondents for having a relationship with their friend ($M = 2.06$, $SD = 1.18$, $\alpha = .83$).

Self-disclosures received and communication technologies used. Respondents were asked to answer a series of questions about their use of five different new communication technologies during the 7 days prior to completing the questionnaire: mobile phone (for calling), text messaging (via mobile phone), social network sites (for status updates), instant messaging, and e-mail. The items were constructed to be consistent across technologies; communication episodes initiated by each respondent's friend served as the focus of the questions. The series of questions followed the same format for each technology: Respondents were asked whether they used each communication technology during the previous 7 days. Those who responded affirmatively were then asked to access the appropriate technology and review the logs (e.g., review the calls received log on their mobile phone, e-mail inbox, etc.) to identify communication episodes initiated by their friend.[3] Respondents who indicated having at least one communication episode initiated by their friend were asked to count and report the total number of episodes initiated by their friend during the previous 7 days. To evaluate self-disclosures, respondents were then asked to estimate the percentage of the episodes initiated by their friend that were "about her/him (i.e., information or facts about her/him; events in her/his day or life; her/his personal feelings, opinions, judgments)." This operationalization of self-disclosure is consistent with the conceptual definition of self-disclosure offered by Derlega et al., (1993, p. 1)—"what individuals verbally reveal about themselves to others (including thoughts, feelings, and experiences)." To determine the proportion of superficial self-disclosures, respondents were asked to estimate the percentage of episodes initiated by their friend about him/herself that were "about things that were trivial or superficial." These items were then used to derive the measures of self-disclosures received and proportion of disclosures that were superficial. It should be noted that respondents were asked this same series of questions for each of the five technologies and that respondents reported on communication episodes initiated by the same friend throughout the questionnaire.

Self-disclosure volume was computed as follows: For each communication technology, the number of communication episodes initiated by the friend was multiplied by the proportion of episodes that respondents estimated to include a self-disclosure.[4] Given the differences among communication episodes across the five technologies (e.g., a status update is limited to a maximum number of characters, whereas a phone conversation is not), these values for each technology were standardized by converting them to z-scores; the sum of the z-scores was computed across the five technologies for each individual to arrive at the *total volume of self-disclosures received* ($M = 0.00$, $SD = 2.54$). Standardizing scores for each technology prior to computing the sum across technologies made it possible to account for technical differences in communication episodes among the technologies. Individual differences between technologies are effectively mitigated because each respondent's score for a given technology was determined relative to the scores reported by all other respondents for that same technology. As such, the total volume measure represents the degree to which an individual respondent received a greater or smaller amount of self-disclosures across the five technologies relative to the other respondents in the sample.

The total proportion of superficial self-disclosures received by respondents from their friend was identified by first computing the raw number of communication episodes containing a superficial self-disclosure via each technology. For each technology, the raw number of episodes containing a superficial self-disclosure was then divided by the raw number of episodes containing a self-disclosure to determine the proportion of superficial disclosures received via each technology. Finally, the mean proportion of superficial disclosures received across the five technologies was calculated to arrive at the *total proportion of superficial disclosures* ($M = .27$, $SD = .27$).

Control variables. Three factors that have been demonstrated to influence self-disclosure processes and outcomes were assessed and included in the analyses as control variables, including, respondents' sex, sex of the dyad (same/mixed), and relationship type. Dindia and Allen's (1992) meta-analysis offers evidence of sex difference in self-disclosure as well as differences based on the sex of the dyad (same/mixed). Moreover, recent research has shown sex differences in the use of new communication technologies to interact with friends (Ledbetter, 2009). Respondents self-reported their *sex* (55% female). The sex of each respondent's friend was used to determine the *dyad sex* (same $= 56\%$; mixed $= 44\%$). Social penetration theory (Altman & Taylor, 1973) suggests that the stage or type of friendship may impact respondents' evaluation of the discloser and their relationship. *Friendship type* was assessed by asking respondents to identify the nature of their relationship with their friend on a 5-point scale ranging from *distant friend* (1) to *best friend* (5) ($M = 3.87$, $SD = .97$).

Results

Preliminary analyses

The data were first inspected following the recommendations specified by Tabachnick and Fidell (2001). The inspection revealed that the total volume of self-disclosures and

proportion of superficial disclosures measures were positively skewed. Both variables were log transformed. The transformations effectively resolved the skewness in both total volume of self-disclosures ($M = .41$, $SD = .29$) and proportion of superficial disclosures received ($M = .09$, $SD = .09$). Confirmatory factor analyses were also conducted for all multi-item measures. The measures of liking, relationship satisfaction, relationship costs, and willingness to provide social support were unidimensional. Finally, the number of participants who reported receiving at least one self-disclosure from their friend during the previous week via each of the five communication technologies was after examined phone call ($n = 120$), text messaging ($n = 121$), e-mail ($n = 58$), social network site status update ($n = 58$), and instant messaging ($n = 26$).

Testing H1 and H2: The implications of receiving superficial disclosures

H1 predicted that the proportion of superficial self-disclosures received from a friend is negatively associated with (a) liking, (b) relationship satisfaction, and (c) willingness to provide social support. H2 predicted that the preceding relationships are moderated by the total volume of self-disclosures received. Three regression models were constructed to test these hypotheses; the models were identical, with the exception of the outcome variable (i.e., liking, relationship satisfaction, or willingness to provide social support). The three control variables (i.e., sex, dyad sex, and friendship type) were entered in the first block of the models. The total volume of self-disclosures received from the friend and proportion of superficial disclosures were entered in the second block. The third block of all three models consisted of the interaction between the total volume of self-disclosures received and the proportion of superficial disclosures. The variables in the second block were mean centered prior to constructing the interaction term (Aiken & West, 1991).

The results, which are presented in Table 1, offer support for H1b. After accounting for the control variables, the proportion of superficial disclosures received from a friend was negatively associated with relationship satisfaction. H1a and 1c were not supported. The results relevant to H1a and 1b, however, were qualified by significant interaction effects. Consistent with H2a and 2b, the interaction between the total volume of self-disclosures received and the proportion of superficial disclosures was significant for relationship satisfaction and liking. The PROCESS macro for SPSS created by Hayes (2013) was used to decompose the interactions. The associations between the proportion of superficial disclosures and both relationship satisfaction and liking were computed at 1 SD above the mean volume of self-disclosures received and at 1 SD below the mean volume of self-disclosures received. The results, which are illustrated in Figures 1 and 2, are consistent across both outcomes. When the total volume of self-disclosures received was relatively low (i.e., 1 SD below the mean), the proportion of superficial disclosures was unrelated to relationship satisfaction or liking. However, when the total volume of self-disclosures received was high (i.e., 1 SD above the mean), the unstandardized beta coefficients indicate that the proportion of superficial disclosures was inversely associated with relationship satisfaction and liking. To summarize, superficial disclosures were problematic among respondents who received a

Table 1. Total volume of self-disclosures received and proportion of superficial disclosures as predictors of liking, relationship satisfaction, and willingness to provide social support.

	Liking			Relationship satisfaction			Willingness to provide social support		
	β	t	ΔR^2	β	t	ΔR^2	β	t	ΔR^2
Block 1: Control variables			.12*			.21*			.17*
Friendship type	.31*	4.24		.39*	5.55		.29*	4.04	
Sex (0 = female; 1 = male)	−.06	−.81		−.02	−0.32		−.21*	−3.06	
Dyad sex (0 = same; 1 = mixed)	−.06	−.81		−.15	−2.20		−.08	1.09	
Block 2: Disclosure			.02			.04*			.01
Total volume of self-disclosures received	−.11	−1.60		−.02	−0.33		.001	0.02	
Proportion of superficial disclosures received	−.07	−1.05		−.20*	−3.12		−.12†	−1.71	
Block 3: Interaction			.02*			.03*			.001
Total volume of self-disclosures received × Proportion of superficial disclosures received	−.14*	−2.03		−.16*	−2.57		.03	.42	

Note. Total volume of self-disclosures received and proportion of superficial disclosures were log transformed. The results for each block are reported when that block was added to the model. Model summaries: liking, F (6, 188) = 5.99, $p < .05$, $R^2 = .16$; relationship satisfaction, F (6, 188) = 12.23, $p < .05$, $R^2 = .28$; and willingness to provide social support, F (6, 188) = 6.99, $p < .05$, $R^2 = .18$.
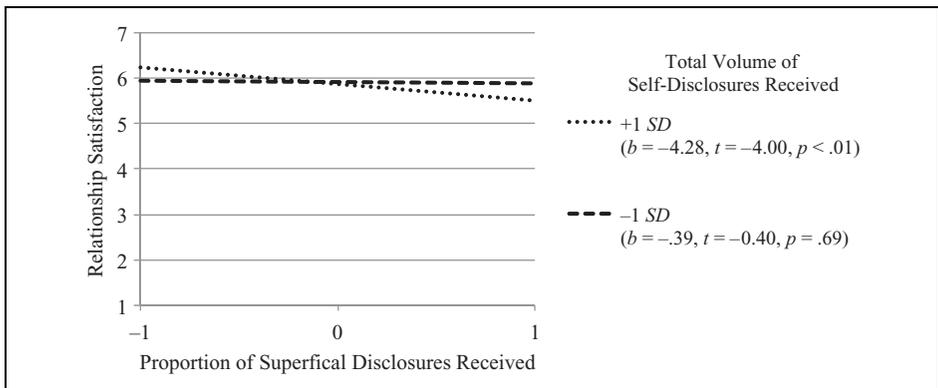*$p < .05$; $^\dagger p < .10$.

Figure 1. Total volume of self-disclosures received moderate relationship between proportion of superficial disclosures received and relationship satisfaction.

greater volume of self-disclosures. Finally, the interaction between the total volume of disclosures received and proportion of superficial disclosures for willingness to provide social support was not significant. H2c was not supported.[5]
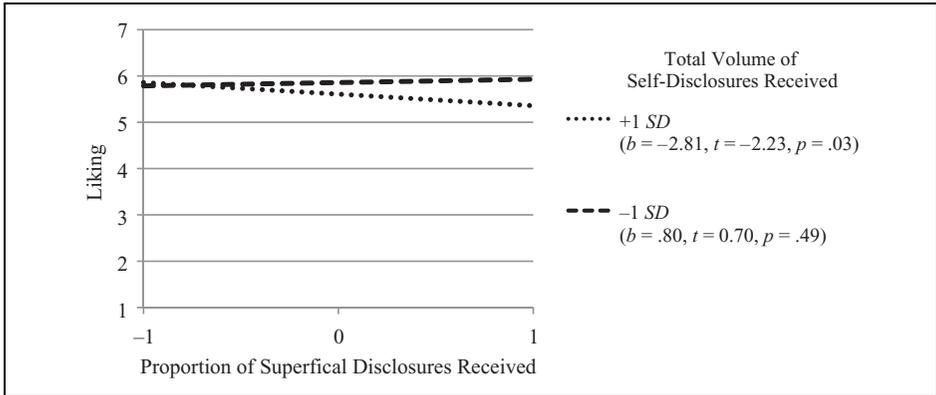
Figure 2. Total volume of self-disclosures received moderate relationship between proportion of superficial disclosures received and liking.

Testing H3: Relationship costs as a mediator

H3 predicted that perceived relationship costs mediate the relationship between the reception of superficial disclosures and the three relationship outcomes. Given that there were significant interactions between the total volume of disclosures received and proportion of superficial disclosures for relationship satisfaction and liking, two mediated moderation models were tested using the PROCESS macro for SPSS (Hayes, 2013). This macro makes it possible to test perceived costs as a mediator of the relationship between the interaction term and each outcome while accounting for the control variables and holding constant the conditional effects for the two variables that compose the interaction term. Model 8 was selected and 10,000 bootstraps were specified for computing the standard errors used to construct the bootstrapped confidence intervals (BCI). Separate models were tested for relationship satisfaction and liking. The results offered evidence that perceptions of costs fully mediated the relationships between the interaction and both liking and satisfaction. The indirect effects from the interaction term through relationship costs to relationship satisfaction (-2.15, 95% BCI [-4.59, $-.23$]) and liking (-2.32, 95% BCI [-4.99, $-.19$]) were both significant. Additionally, with perceived costs included in the models, the associations between the interaction and both liking and relationship satisfaction were no longer significant (i.e., $p > .05$). The results for liking and relationship satisfaction are consistent with H3. Figures 3 and 4 illustrate the results and report the unstandardized coefficients and standard errors for the various relationships in the two mediated moderation models.

Discussion

The purpose of this study was to better understand the implications of superficial self-disclosure in personal relationships. Drawing from social penetration theory (Altman & Taylor, 1973) and social exchange theories (Homans, 1958; Thibaut & Kelly, 1959), superficial disclosures were considered in terms of costs and rewards for
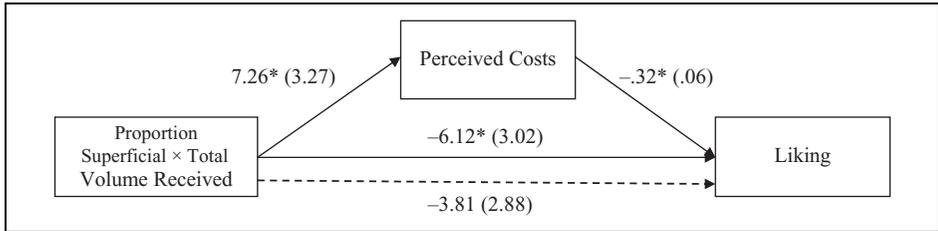
Figure 3. Mediated moderation model depicting perceived costs as a mediator of the interaction between the total volume of self-disclosures received and the proportion of superficial disclosures received for liking.
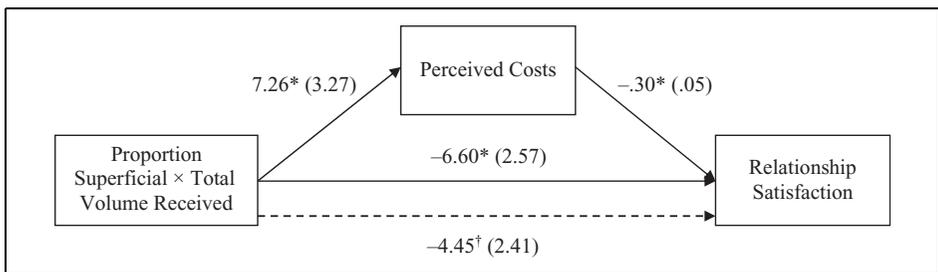

Figure 4. Mediated moderation model depicting perceived costs as a mediator of the interaction between the total volume of self-disclosures received and the proportion of superficial disclosures received for relationship satisfaction. $*p < .05$; $^{\dagger}p < .10$. To facilitate interpretation of the models, the conditional effects for the total volume of disclosures and proportion of superficial disclosures are not reported. Sex, dyad sex, and relationship type were used as control variables in testing the models. All coefficients are unstandardized (standard errors are reported in parentheses). The coefficient for the dashed line refers to the relationship between the interaction term and liking or relationship satisfaction while controlling for perceived costs.

disclosure recipients. The results offer some evidence that, under certain conditions, superficial disclosures are associated with deleterious relationship outcomes among friends. In the following section, the findings are discussed and the implications for research on self-disclosure, new communication technologies, and personal relationships are considered.

The outcomes of receiving superficial self-disclosure

Although self-disclosure has been a long-standing topic of interest among scholars (e.g., Altman & Taylor, 1973; Cozby, 1973; Derlega et al., 1993; Jourard, 1971), much of the research in the context of personal relationships has focused on intimate disclosures (Dindia, 1997; Greene et al., 2006). Yet social penetration theory (Altman & Taylor, 1973) offers reasons to believe that superficial disclosures might play an important role in personal relationships and several recent content analyses have shown that trivial information is routinely shared via new communication technologies (Dann, 2010; Lee,

2011; Oulasvirta et al., 2010; Rettie, 2009). The results of this study suggest some conditions under which such superficial disclosures may be problematic in personal relationships.

Two significant interaction effects were found between the proportion of superficial disclosures received and the total volume of disclosures received for liking and relationship satisfaction. Decomposing the interactions revealed consistent trends: Among individuals who received a relatively large total volume of self-disclosures from their friend, the proportion of superficial disclosures received was negatively associated with both liking and relationship satisfaction. The greater the proportion of superficial disclosures received, the less individuals reported liking their friend and the less satisfied they were with their relationship. In considering the results, it is important to clarify that they do not suggest that superficial disclosures are always problematic. In fact, the relationships between the proportion of superficial disclosures and both satisfaction and liking were not significant when the total volume of disclosures received was relatively small. It is only when respondents received a relatively large total volume of self-disclosures and a significant proportion of those disclosures were superficial that problems arose. It is also noteworthy that the proportion of superficial disclosures received was unrelated to respondents' willingness to provide social support to their friend. Although superficial disclosures might serve to undermine perceptions of one's relationship, they may not be enough of a burden to lead respondents to abandon their responsibilities as a friend.

The results also offer evidence consistent with the explanation drawn from social penetration theory (Altman & Taylor, 1973) and social exchange theories (Homans, 1958; Thibaut & Kelly, 1959) that superficial disclosures are associated with deleterious outcomes because they are perceived to be a relationship cost. The tests of the mediated moderation models indicate that perceived costs fully mediated the relationships between the interaction term and both liking and satisfaction. When the total volume of self-disclosures was large, increases in the proportion of superficial disclosures received was positively associated with increased perceived costs and, ultimately, reduced liking and satisfaction. This finding is particularly important because it helps to isolate a specific mechanism explaining why superficial disclosures become problematic. Respondents appeared to perceive superficial disclosure as a cost that, in significant enough quantities, undermined their satisfaction with and liking of their friend. In considering the findings related to costs, it should be noted that the magnitude of the costs was relatively small. The data from this study do not suggest that respondents were motivated to completely terminate their relationship with the discloser. However, the participants were only asked to report on their communication episodes with a friend during a period of 7 days. Over the course of more time, prolonged exposure to disclosures that are exclusively trivial may reflect a cumulative cost that has significant implications for the relationship.

The findings from this study offer insights about self-disclosure and the implications of new communication technologies for personal relationships. First, although much of the research examining self-disclosure focuses on intimate disclosures (Greene et al., 2006), this study offers evidence that superficial self-disclosure can have noteworthy implications for personal relationships. Beyond being a staple of communication at very early stages of relationship formation (Altman & Taylor, 1973), the results offer evidence that superficial disclosures have consequences in established relationships. Social penetration theory (Altman & Taylor, 1973) assumes that more developed relationships

are marked by both intimate and trivial self-disclosures. The findings from this study suggest that it is critical to maintain a balance between trivial and intimate disclosure in these types of relationships. In large enough quantities and when they compose a large proportion of all of one's interactions, superficial self-disclosure may serve as a cost that effectively undermines close relationships. More broadly, the findings underscore the utility of examining the role of costs and rewards in relationship processes (Altman & Taylor, 1973; Homans, 1958; Thibaut & Kelly, 1959).

Second, the findings from this study speak to broader questions raised by some scholars about the implications of being able to connect with one's friends and family at virtually any time and place (Katz & Aakhus, 2002). Turkle (2008, p. 122), for example, writes that the widespread diffusion of new communication technologies has created a society in which we are "tethered to our 'always-on/always-on-you' communication devices and the people and things we reach through them." Indeed, communication technologies such as mobile phones, e-mail, instant messaging, and social network sites have made it increasingly possible to connect with others and disclose the mundane details of one's everyday life. One need not wait to see one's friend face to face or for a time when both parties are available to talk on a landline phone. Mobile phones make it possible to call one's friend at virtually any time; if she or he happens to be unavailable, it is possible to send a message using an asynchronous technology such as e-mail, text message, or social network site status update. The significant interactions reported in this study suggest that, under some conditions, there may be unintended and deleterious consequences of such tethering. If sharing the trivial details of one's everyday life comes to dominate the disclosures one makes to others, it may undermine one's ability to make connections and sustain personal relationships.

Limitations

A few limitations of this study warrant consideration. First, in order to standardize the questionnaire items across the five technologies, respondents were asked to report the number of communication episodes initiated by a friend during the prior week and estimate the proportion of those episodes that included disclosures and superficial disclosures. As such, these data were based on participants' self-reports up to a week after the episodes occurred. Although it would have been desirable to capture all messages exchanged between respondents and their friends during the prior week and have respondents identify the specific messages that counted as superficial disclosures, the number of messages would have made this task virtually impossible for many respondents and served as a significant barrier to participation. Indeed, approximately 30% of the sample reported 20 or more communication episodes initiated by their friend during the prior week. It is also notable that the estimates of self-disclosure and superficiality are based on the objective records provided by the various technologies (e.g., calls received log, text message log, etc.). Using objective records of communication episodes is valuable to help ensure the accuracy of respondents' estimates. Finally, using standardized scores for each technology to arrive at the total volume of disclosures received made it possible to account for differences among individual technologies.

Second, the costs examined in this project were limited to the time and empathic resources of the disclosure recipient. Although prior research suggests that these two costs are likely to be relevant across various types of superficial disclosure content, it also seems possible that other costs might be relevant to disclosure recipients. For example, beyond taking one's time, receiving a large number of positive superficial disclosures about the trivial details of a friend's life might represent a cost in that, via social comparison, it could make one feel more negatively about one's own circumstances. Additional costs may be associated with other specific types of superficial disclosure content.

Third, it was not possible to examine differences in the outcomes of superficial disclosures among the five technologies because only a fraction of the respondents reported receiving a self-disclosure via three or more technologies. Yet the central objective of this project was to better understand the implications of the total volume of superficial disclosures received. In the contemporary communication environment, our "always-on/always-on-you" (Turkle, 2008) technologies have, as a whole, made us much more accessible to others than ever before. Consequently, we think that it is important to explore the cumulative effect of receiving superficial disclosures via a variety of different communication technologies. Nonetheless, it would be valuable to conduct supplementary analyses to examine individual technologies.

Finally, the data from this study do not make it possible to definitively determine causality in the relationship between receiving self-disclosure and the relational outcomes. However, it seems plausible that the disclosures one receives from a friend influences one's liking of their friend and satisfaction with the relationship. The reverse interpretation—that respondents' satisfaction with the relationship and liking of their friend drove the self-disclosures made by their friend—is technically possible but seems much less plausible. More important, the disclosures examined in this study preceded the evaluation of satisfaction and support; respondents used objective records provided by the various technologies and reported on the self-disclosures they received during the 7 days prior to the day they evaluated their relationship.

Future research directions

The results of this study also point to three directions for future research. First, it would be valuable to examine the unique implications of specific communication technologies for receiving superficial disclosures. Although this study focused on the aggregate impact of the five technologies, particular classes of technologies may be associated with distinct outcomes. The use of technologies such as social network sites, blogs, or microblogs to broadcast a single superficial disclosure to an undifferentiated group of receivers (Bazarova, 2012; Jang & Stefanone, 2011) may have different effects that when the disclosure is communicated using a technology such as text messaging that is typically used to communicate with a single individual. Similarly, there may be differences based upon whether the technology is synchronous or asynchronous. Because they demand one's immediate time and attention, superficial disclosures received via synchronous technologies may be perceived differently than when they are received via an asynchronous technology like e-mail.

Second, it would be valuable to examine the content of superficial disclosures received across various technologies. Although several content analyses have been conducted to explore superficial disclosures (Dann, 2010; Lee, 2011; Oulasvirta et al., 2010; Rettie, 2009), these studies typically focus on disclosures communicated using a single technology. It may be that that the types of trivial information vary across different communication technologies. The content of trivial disclosures shared using a technology that allows one to broadcast messages to different receivers might be distinct from those superficial disclosures communicated using technologies that typically foster a private exchange between two individuals. Similarly, it would be worthwhile to consider other costs associated with specific types of superficial disclosure content.

Finally, this project focused on superficial disclosures received in the context of friendships. Developed relationships such as friendships are unique in that, following social penetration theory (Altman & Taylor, 1973), they are marked by both trivial and intimate disclosures. In less developed relationships, however, superficial information is much more common than the disclosure of intimate information. As such, it would be worthwhile to examine the impact of superficial disclosures in relationships that are less developed. It may be that, because they are more normative, they have less deleterious consequences in this context. It would also be valuable to explore differences in responses to trivial self-disclosures across different types of relationships. It may be that the same trivial disclosure has different effects depending upon the receivers' closeness to the discloser.

Conclusion

Scholarship examining self-disclosure has a rich history in the field of communication and related disciplines. This project focuses on the outcomes of self-disclosure and examines disclosure recipients' responses to superficial disclosures received from a friend across five communication technologies. The results suggest that, under certain conditions, superficial self-disclosures are associated with deleterious outcomes for personal relationships. The results of this project underscore the importance of continued research on this long-standing topic of interest as well as the potential implications of new communication technologies in personal relationships.

Notes

1. Readers might question why the proportion of superficial disclosures received was examined in this project as opposed to the raw number of superficial disclosures received. The problem with examining the raw number of superficial disclosures is that disclosure volume is confounded with disclosure depth. That is, it would not be possible to determine whether a significant association between the raw number of superficial disclosures received and a relational outcome stemmed from receiving a large number of self-disclosures or the fact that the disclosures were superficial (or a combination of the two). Separating disclosure volume from depth makes it possible to isolate the unique impact of superficial disclosures and the joint effect of volume and depth.

2. A total of 271 respondents completed the questionnaire; however, 72 reported not receiving at least one self-disclosure from the friend who served as the focus for the questionnaire during the prior week. Although respondents were randomly assigned to select a friend based on the friend's sex and their relationship with the friend (e.g., best friend, close friend, etc.), they were

not explicitly instructed to select an individual from whom they recently received a disclosure. Given the objective of better understanding responses to self-disclosure, the sample was limited to only those respondents who reported receiving at least one self-disclosure from their friend during the prior week.

3. Respondents were informed that, in the event that they used multiple social network sites, e-mail accounts, etc. they should access and report on the specific site or account they use most frequently.

4. The resulting value for each for each technology contained one or more outliers (i.e., scores more than 3 SDs greater than the mean). Outliers were recoded to the value that was 3 *SD*s greater than the mean for a given technology; this approach made it possible to retain extreme scores but ensure that they are not so discrepant that they unduly influence the findings (Tabachnick & Fidell, 2001).

5. It was not possible to examine differences in the outcomes associated with superficial disclosures received across the various technologies. Only 50 participants reported receiving a self-disclosure from three or more technologies. Nonetheless, limited supplementary analyses were conducted to evaluate the potential for differences across technologies. Given that social network sites are unique from the other four technologies in that disclosures are public and not typically directed toward any one recipient, we omitted social network sites from our calculation of both the total number of disclosures received and proportion of superficial disclosures measures and reconducted the analyses. If the results for social network sites were substantially discrepant from the aggregate of the other four technologies, then removing social network sites from the aggregate measure should cause the two interactions to no longer be significant. Yet even with social network sites removed, the results did not change. The interaction between the total number of self-disclosures received and proportion of superficial disclosure remained significant for both liking and relationship satisfaction.

Funding

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. London, UK: Sage.

Altman, I., & Taylor, D. (1973). *Social penetration: The development of interpersonal relationships*. New York, NY: Holt, Rinehart and Winston.

Bazarova, N. N. (2012). Public intimacy: Disclosure interpretation and social judgments on Facebook. *Journal of Communication*, *62*, 815–832. doi:10.1111/j.1460-2466.2012.01664.x

Berger, C., & Calabrese, R. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research*, *1*, 99–112. doi:10.1111/j.1468-2958.1975.tb00258.x

Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language use*. Cambridge, UK: Cambridge University Press.

Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: A meta-analytic review. *Psychological Bulletin*, *116*, 457–475. doi:10.1037/0033-2909.116.3.457

Cozby, P. C. (1973). Self-disclosure: A literature review. *Psychological Bulletin*, *79*, 73–91.

Dann, S. (2010). Twitter content classification. *First Monday*, *15*. Retrieved from http://firstmon-day.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/2745/2681

Derlega, V. J., & Chaikin, A. L. (1975). *Sharing intimacy: What we reveal to others and why*. Englewood Cliffs, NJ: Prentice-Hill.

Derlega, V. J., Metts, S., Petronio, S., & Margulis, S. T. (1993). *Self-disclosure*. Newbury Park, CA: Sage.

Dindia, K. (1997). Self-disclosure and self and relationship identity: A transactional/dialectical perspec-tive. In S. Duck (Ed.), *Handbook of personal relationships* (pp. 411–426). Chichester, UK: Wiley.

Dindia, K., & Allen, M. (1992). Sex differences in self-disclosure: A meta-analysis. *Psychological Bulletin*, *112*, 106–124. doi:10.1037/0033-2909.112.1.106

Foynes, M. M., & Freyd, J. J. (2013). An exploratory study evaluating responses to the disclosure of stressful life experiences as they occurred in real time. *Psychological Trauma*, *5*, 295–300.

Greene, K., Derlega, V. J., & Mathews, A. (2006). Self-disclosure in personal relationships. In A. Vangelisti & D. Perlman (Eds.), *Cambridge handbook of personal relationships* (pp. 409–427). Cambridge, UK: Cambridge University Press.

Hampton, K., Goulet, L. S., Rainie, L., & Purcell, K. (2011). *Social networking sites and our lives*. Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: The Guilford Press.

Haythornthwaite, C. (2005). Social networks and Internet connectivity effects. *Information, Communication, and Society*, *8*, 125–147.

Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and Family*, *50*, 93–98.

Homans, G. (1958). Social behavior as exchange. *American Journal of Sociology*, *62*, 597–606. doi:10.1086/222355

Jang, C. Y., & Stefanone, M. A. (2011). Non-directed self-disclosure in the blogosphere. *Informa-tion, Communication and Society*, *14*, 1039–1059.

Joinson, A. N., Houghton, D. J., Vasalou, A., & Marder, B. L. (2011). Digital crowding: Privacy, self-disclosure and technology. In S. Trepte & L. Reinecke (Eds.), *Privacy online. Perspectives on privacy and self-disclosure in the social web* (pp. 31–44). New York, NY: Springer.

Joinson, A. N., & Paine, C. B. (2007). Self-disclosure, privacy and the Internet. In A. N Joinson, K. Y. A McKenna, T. Postmes, & U.-D. Reips (Eds.), *Oxford handbook of Internet psychol-ogy* (pp. 237–252). Oxford, UK: Oxford University Press.

Jourard, S. M. (1971). *The transparent self*. New York, NY: D. Van Nostrand.

Katz, J., & Aakhus, M. (2002). Making meaning of mobiles: A theory of Apparatgeist. In J. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 301–320). Cambridge, UK: Cambridge University Press.

Kim, J., & Dindia, K. (2011). Online self-disclosure: A review of research. In K. B. Wright & L. M. Webb (Eds.), *Computer-mediated communication in personal relationships* (pp. 156–180). New York, NY: Peter Lang.

Lee, C. K. M. (2011). Micro-blogging and status updates on Facebook: Texts and practices. In C. Thurlow & K. Mroczek (Eds.), *Digital discourse: Language in the new media* (pp. 110–128). New York, NY: Oxford University Press.

Ledbetter, A. M. (2009). Patterns of media use and multiplexity: Associations with sex, geographic distance and friendship interdependence. *New Media & Society*, *11*, 1187–1208.

Meeks, B. S., Hendrick, S. S., & Hendrick, C. (1998). Communication, love, and relationship satisfaction. *Journal of Social and Personal Relationships*, *15*, 137–142. doi:10.1177/0265407598156003

Miller, V. (2008). New media, networking, and phatic culture. *Convergence*, *14*, 387–400.

Oulasvirta, A., Lehtonen, E., Kurvinen, E., & Raento, R. (2010). Making the ordinary visible in microblogs. *Personal and Ubiquitous Computing*, *14*, 237–249. doi:10.1007/s00779-009-0259-y

Petronio, S. (2002). *Boundaries of privacy: Dialectics of disclosure*. Albany, NY: State University of New York Press.

Pettigrew, J. (2009). Text messaging and connectedness within close relationships. *Marriage & Family Review*, *45*, 697–716.

Purcell, K. (2011). *Half of adult cell phone owners have apps on their phones*. Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org

Radovanovic, D., & Ragnedda, M. (2012). Small talk in the digital age: Making sense of phatic posts. In M. Rowe, M. Stankovic, & A.-S. Dadzie (Eds.), *Proceedings of the WWW'12 Work shop on Making Sense of Microposts* (*Vol. 838*, pp. 10–13). CEUR Workshop Proceedings.

Rettie, R. (2009). SMS: Exploiting the interactional characteristics of near-synchrony. *Information, Communication & Society*, *12*, 1131–1148. doi:10.1080/13691180902786943

Roloff, M. E. (1981). *Interpersonal communication: The social exchange approach*. Beverly Hills, CA: Sage.

Rubin, Z. (1970). Measurement of romantic love. *Journal of Personality and Social Psychology*, *16*, 265–273. doi:10.1037/h0029841

Ruppel, E. K. (in press). Use of communication technologies in romantic relationships: Self-disclosure and the role of relationship development. *Journal of Social and Personal Relationships*. doi:10.1177/0265407514541075

Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science & Medicine*, *32*, 705–714. doi:10.1016/0277-9536(91)90150-B

Smith, A. (2011). Americans and text messaging. Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org

Sprecher, S., & Hedrick, S. S. (2004). Self-disclosure in intimate relationships: Associations with individual and relationship characteristics over time. *Journal of Social and Clinical Psychology*, *23*, 857–877.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn and Bacon.

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York, NY: John Wiley.

Tong, S. T., & Walther, J. B. (2011). Relational maintenance and computer-mediated communication. In K. B. Wright & L. M. Webb (Eds.), *Computer-mediated communication in personal relationships* (pp. 98–118) New York, NY: Peter Lang Publishing.

Turkle, S. (2008). Always-on/always-on-you: The tethered self. In J. E. Katz & M. Castelles (Eds.), *Handbook of mobile communication studies* (pp. 121–137). Cambridge, MA: MIT Press.

Vangelisti, A. L., & Banski, M. (1993). Couples' debriefing conversations: The impact of gender, occupation, and demographic characteristics. *Family Relations*, *42*, 149–157. doi:10.2307/585448

Worthy, M., Gary, A. L., & Kahn, G. M. (1969). Self-disclosure as an exchange process. *Journal of Personality and Social Psychology*, *13*, 59–63. doi:10.1037/h0027990