A Communicative Interdependence Perspective of Close Relationships: The Connections Between Mediated and Unmediated Interactions Matter

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In response to calls to recognize that both face-to-face (FtF) interaction and technologically mediated communication (TMC) often occur in the same relationships, we introduce a communicative interdependence perspective with a central tenet that relational closeness is associated with interconnections among modes of communication. We examined this perspective with a focus group study (N = 17) and a more extensive survey (N = 317). Consistent with the communicative interdependence predictions, relational closeness was associated positively with integration between FtF and TMC and negatively to difficulties transitioning between modes. Also, discussing topics only via technologically mediated channels was inversely associated with closeness and satisfaction, whereas discussing topics only in person was positively related to closeness and satisfaction.

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In the relatively short amount of time that computer-mediated communication (CMC) has become common, there has been an explosion of research on communication technologies in interpersonal communication (e.g., Barnes, 2003; Baym, 2010; Konijn, Utz, Tanis, & Barnes, 2008). Even if one refers just to the use of technologically mediated communication (TMC) within close personal relationships, the literature has become too broad and diverse to completely summarize in any one paper (but see Boase & Wellman, 2006; Walther, 2011; Wright & Webb, 2011, for excellent overviews). Although it has become impossible to succinctly summarize the literature in this area, it is possible to make some general statements about the main foci of most of the relevant research. This article first adumbrates these main foci, then makes a case for a new way of conceptualizing communication technologies within close relationships, then presents two studies that serve as evidence of the promise for this new perspective for enhancing our understanding of how communication modes are used in personal relationships.

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Broadly speaking, the literature on communication technologies (and CMC) in personal relationships has focused on two types of general questions. First, numerous studies have compared online communication to offline communication. For example, in the now classic work on Walther’s (1996) hyperpersonal model, CMC was compared to face-to-face (FtF) communication. The core argument of the hyperpersonal model is that certain features of CMC, such as its minimal cues and asynchronous nature, allow people self-presentational opportunities that can lead to “interaction that is more desirable than we can often manage FtF” (Walther, 1996, p. 28). Work on the hyperpersonal model has continued and has begun to identify cognitive mechanisms associated with the differences between CMC and FtF communication; for instance, Jiang, Bazarova, and Hancock (2011) found that the stronger association between self-disclosure and intimacy in CMC compared to FtF interactions was mediated by a greater tendency to make relational-level attributions in the CMC interactions. Whereas the Jiang et al. (2011) study provides detailed elaboration on some of the ideas of the hyperpersonal model, the general goal remains to compare online and offline communication processes. This same broad goal is evident in many studies of how people use communication technologies across a variety of relational contexts. Some of the findings from such studies include evidence that (a) norms for online versus offline disclosures differ (Mesch & Beker, 2010); (b) FtF support is more comforting than CMC support for military family members after a disruptive event (Lewandowski, Rosenberg, Parks, & Siegel, 2011); (c) offline friendships tend to be more intimate than online ones overall, but the differences are smaller in longer term relationships than in newer ones (Chan & Cheng, 2004); and (d) romantic partners who engage in conflict are more likely to use FtF means for integrative or constructive strategies but more likely to use CMC for dominating strategies (Frisby & Westerman, 2010).

The second broad goal of studies examining communication technologies in relationships has been to examine how such technologies function in relationships without making direct comparisons to FtF communication. Overall, the findings indicate that communication technologies have become pervasive in relationships, they are used for multiple purposes, and there is not a simple way to summarize their general impact. For example, in a longitudinal study of married couples, Kerkhof, Finkenauer, and Muuses (2011) found that frequent Internet use was associated with high marital well-being, but that people who had compulsive Internet tendencies (e.g., feeling compelled to use the Internet despite a desire to take a break or reduce usage) experienced deteriorating marital well-being. One reason that it is impossible to provide a simple statement about the effects of communication technologies on relationships is people use them to fulfill quite varied functions in relationships, ranging from establishing relationships through online dating sites (e.g., Heino, Ellison, & Gibbs, 2010), to refusing dates online (e.g., Tong & Walther, 2010), to using text messaging to help avoid conflicts (e.g., Cho & Hung, 2011), to maintaining relationships (e.g., Ramirez & Broneck, 2009), to keeping track of or even stalking partners or potential partners via social networking sites (Phillips & Spitzberg, 2011).
Although these two broad foci in the literature are quite different, one theme that runs through them both is they conceptualize separate modes or channels of communication in relationships as acting independently. One set of studies compares TMC to FtF communication, and the other set examines TMC in isolation (or at least apart from FtF). Treating channels as separate has been a reasonable decision; if the goal, for example, is to understand how new technologies operate in relationships, the most obvious tasks are to compare communication via those channels to FtF communication and to see what effects and functions are associated with those technologies. The literatures examining these issues are now large, diverse, and impressive.

A relational perspective
If the focus is on understanding communication in relationships (regardless of mode), the main concern shifts from understanding the features and effects of various channels to the broader question of how communication is implicated in relational development and well-being. From this perspective, how channels operate in isolation becomes less important because there are good reasons to think that people in relationships use multiple modes of communication (Baym, 2009). Consider, for example, Frisby and Westerman’s (2010) finding that text messaging is preferred for some conflict strategies while FtF is preferred for others. For people to choose text messaging over FtF communication to avoid a conflict topic implies that they will probably be talking with that person again at some point, and the communication that occurred via text will undoubtedly influence that next FtF conversation (e.g., the text exchange may begin the avoidance of a topic, eliminating the need to overtly change the subject in person).

Conversations in close relationships do not occur in definitively segmented episodes. Instead, certain issues and themes can arise repeatedly and across numerous particular interactions. Even though these reoccurrences may happen at different times and in different places, they are recognizable as belonging to part of the same stream of discourse. Indeed, “a dyadic conversation is also a chain segment—a segment of larger communicative processes—in the sense that any two individuals who engage in conversation have, of course, participated in various discursive conversations before, and thus bring to the event biographically specific discursive histories” (Agha, 2007, p. 70). In personal relationships, for instance, certain conflict topics become serial arguments, and the meaning and impact of later discussions of those topics is shaped by earlier discussions of those topics (Reznik & Roloff, 2011). That is, specific encounters within a relationship are connected to other encounters, and there is no theoretical reason to believe that people would restrict the threads of interaction on particular issues to one communication mode; for example, some serial arguing may alternate between FtF communication and technological mediation. Because the bulk of previous research has treated various communication channels as separate entities, the interconnections between episodes using various channels in relationships have generally been overlooked.
There are some exceptions to the general idea that scholars have tended to view various communication channels separately. These exceptions provide support for the notion that it may be valuable to pay greater attention to how the uses of various communication channels are interconnected in close relationships. Baym (2009), for example, argued that it does not make sense to conceptualize “cyberspace” as a separate place or community because most people who connect via the Internet also interact via other technologies or in person. Haythornthwaite (2005) argued that to understand social connections, it is necessary to consider connections “beyond the usual attention to attributes and use of a single medium to examination of all media available” (p. 126). In a series of four studies of network ties, Haythornthwaite (2005) found support for a media multiplexity theory, which proposes that stronger ties are associated with the use of more channels of communication, including private person-to-person modes that were uncommon in weakly linked associations. That is, rather than picking a medium or substituting one for another, people who are linked closely appear to rely on multiple means of communicating. Although Haythornthwaite’s findings pertain to network analysis, studies focusing on particular relationships yield corroborating findings. Ramirez and Broneck (2009), for example, found that people’s use of instant messaging to maintain relationships with particular individuals was positively related to the extent to which they also emailed them, talked to them on the phone, and conversed with them FtF.

In short, despite the general tendency of the extant literature to treat communication by different channels separately, it is likely that in close relationships, people do not communicate exclusively through any particular mode (e.g., TMC or FtF). Instead, they communicate in their relationships, and this communication can occur via different channels. This crucial insight suggests that scholars interested in relational communication should reconceptualize the connections between FtF and various forms of mediated communication. Although the argument to this point has focused on the extent to which studies of communication media in relationships have treated various communication channels as if they are entirely separated from each other and from FtF communication, a similar argument can be made of many traditional studies of FtF communication. Most traditional studies of FtF communication focus on what happens in person, which implicitly assumes that FtF communication is neatly segmented from TMC. Yet if people in close relationships are increasingly using multiple modes of communication, then an important research agenda is to understand how people are using these various channels together to establish and maintain relationships. We now know that people are using various means of communicating in the same relationships, but we know very little about what this looks like, what people’s preferences are, or how this might vary according to the closeness of a relationship. This article begins to address such issues by focusing on one particular type of relationship, romantic relationships. Romantic relationships were selected for examination because they are an important type of relationship and because, from initial attraction to marriage, they vary widely in closeness.
A communicative interdependence perspective of relationships

Our communication interdependence perspective builds upon media multiplexity theory (Haythornthwaite, 2005) and empirical findings suggesting that relational closeness is linked to multiple modes of communication (Ramirez & Broneck, 2009). Assuming that media multiplexity is correct, the extent to which people use various modes of communication is positively associated with relational closeness. Yet we argue that knowing people use more of various communication modes in close relationships than they do in distant ones provides only a rudimentary understanding of how multiple modes of communication are used in relationships. The central claim of our communicative interdependence perspective is that, in addition to recognizing that people tend to use multiple modes of communication in close relationships, it is also important to understand how the use of those modes is (or is not) interconnected.

The communication interdependence perspective is rooted in scholarship on personal relationships. At the beginning of a relationship, there may be an attraction or desire for relational development, but a relationship begins with what Levinger (1977) referred to as surface-level contact. If a relationship becomes close, it means that encounters become more varied and partners develop a sense of mutuality (Huston & Burgess, 1979; Levinger, 1977). Scholars seeking to understand how these interconnections develop and operate have long relied on interdependence theory (Kelley et al., 1983), as well as other models that were influenced by interdependence theory such as Rusbult’s investment model (Rusbult & Buunk, 1993) and Solomon and Knobloch’s turbulence model (Solomon & Knobloch, 2004). Though varied in the specifics, such perspectives share a focus on interconnections between relational partners. These theories usually focus on the interconnections between relational partners as individuals, but the basis of those interconnections is exchanges of relational behaviors (Kelley et al., 1983). That is, interdependence is not merely a global sense of being connected to another person, it is also rooted in and reflected in the connections among interpersonal behaviors within relationships. Thus, from this interdependence perspective, a key to understanding relationships involves understanding how relational behaviors are (and are not) interconnected.

Our communication interdependence perspective builds on this insight from (more general) interdependence theories in two ways. Most obviously, our focus here is on the relational communication that occurs via various modes, including both TMC and FtF interaction. More important, the focus in traditional interdependence literature is on how partners’ behaviors become interconnected with each other. Although that focus remains relevant, the communication interdependence perspective’s primary concern is the extent to which different modes of communication are interconnected within a given relationship; for example, does a couple’s use of texting while they are not together affect their conversations in person? In short, the communication interdependence perspective attends to how messages conveyed through different modes are connected with each other within close relationships.
Unfortunately, the extant literature does not provide much specific guidance about what such interconnections among communication modes look like. On the basis of interdependence theories, we can make some very broad predictions. For instance, interdependence theory would suggest that the strong interconnections among various modes of communication generally would be associated with perceptions of relational closeness and satisfaction. When relational partners structure their activities in ways that different communication modes operate together to achieve mutually desirable ends, the interconnectedness between their behaviors should lead to a mutual sense of closeness and satisfaction. Yet, modes of communication also might work against or interfere with each other. If various modes of communication interfere with each other, both interdependence theory (Berscheid, 1983) and the relational turbulence model (Knobloch & Solomon, 2004) would suggest that this would be a dissatisfactory experience.

Although such broad theoretical propositions are reasonable, testing them is problematic because we know almost nothing about exactly how F2F communication and various communication technologies are (or are not) used together in relationships. To be sure, sometimes people will choose one medium over another (e.g., Frisby & Westerman, 2010), but when they are not substituting one medium for another, how do they use various modes together? Consequently, prior to a more systematic investigation of these general ideas, it was necessary to conduct a preliminary study to examine the general issue of:

**RQ1:** How do people report using communication technologies and face-to-face communication together in personal relationships?

### Preliminary study

**Method**

**Participants**

Data for the preliminary study were collected from undergraduate students ($N = 17$) enrolled in communication courses at the University of Illinois. Students were offered extra credit in an amount specified by their instructors in exchange for participation. Our sample contained more women (76.5%; $n = 13$) than men (23.5%; $n = 4$). Participants were young adults who ranged from 18 to 22 years of age ($M = 19.94$; $SD = 1.30$). Most respondents self-identified as being of European American descent (58.8%; $n = 10$), followed by Asian American (17.6%; $n = 3$), African American (11.8%; $n = 2$), and Latino, or Latina (11.8%; $n = 2$).

**Procedure**

We conducted five 1-hour focus groups, and each session was composed of three to five people. The same author served as the moderator for all of the group discussions. The moderator introduced the topic of discussion and encouraged participants to share their opinions, even if they contradicted the views of others in the group.
Participants were instructed to speak directly with each other and to discuss their responses as a group. The focus groups responded to five open-ended questions that pertained to the interconnections between TMC and FtF communication. Our overarching goal was to learn more about how college students integrate different modes of communication in their relationships. Our interview guide also included follow-up items that were used to probe participants to explore different facets of the questions under discussion. At the end of the session, the participants were directed to a link to an online questionnaire designed to collect demographic information.

Data analysis
Each focus group was audio recorded and transcribed verbatim. Data from the preliminary study sensitized us to (a) the types of communication technologies that college students use in their relationships, (b) the interconnections and interferences among TMC and FtF communication, and (c) the points in the relationship at which certain modes of communication are more or less prominent.

Results
Although the focus groups were asked about relationships in general, participants focused heavily on their romantic interests or partners, indicating that romantic relationships are an important context for examining the interconnections between communication channels. Overall, the preliminary study led us to four general conclusions about how different modes of communication work together in personal relationships. First, participants talked about the types of communication technologies that they use in terms of their features. Rather than describing Facebook as a mode of contact, for instance, participants primarily recounted their communication through Facebook’s (and other programs’) various features, such as messenger, wall postings, chat, and video chat. Participants also emphasized the distinction between public and private modes of contact, with some people acknowledging that their communication changes depending upon the size of the audience. Overall, then, the communication technologies that were referenced during the focus group interviews could be grouped into the following broad categories: (a) private Internet messaging, (b) public Internet messaging, (c) text messaging, (d) Internet chat, (e) video chat, and (f) phone calls.

Second, the preliminary study confirmed our expectation that TMC and FtF communication frequently do not operate interdependently in relationships. Indeed, some participants described situations where different modes of communication worked together, including times when their communication through one mode set the agenda for or overlapped with a conversation through a different mode. As one person explained:

When I have friends that go to another school and I want to tell them something that happened, I will text them a three sentence summary and when I see them again I will tell them the details and be more animated. So, it’s like a precursor to an actual face-to-face meeting.
Notably, some participants who integrated TMC and FtF communication appeared to engage in conversations that moved between different modes of contact. Participants reported that they sometimes talk in person to continue interactions they began via TMC, and they also reported using technologies to extend interactions that begin in person.

Third, the comment above that referred to FtF communication as an “actual” meeting was indicative of a more general sentiment that there is something unique about FtF communication. Overall, participants made a clear distinction between FtF and TMC, with FtF generally being portrayed as the more intimate mode. For instance, one participant stated, “Obviously if you are going to have a real relationship with someone it has to be face-to-face.” Even though many scholars would argue with the obviousness of that claim, the perceived intimacy of the FtF channel was prevalent in the focus groups. Even when participants spoke of there being times when TMC was preferable, it was often discussed in terms that emphasized the relative intimacy of FtF communication; for example, another participant noted, “For a lot of people it’s easier to say things through a text message or on a computer because you are not that vulnerable.”

Fourth, the transition between different modes of contact was salient to participants, especially in their romantic relationships. One person, for example, revealed her frustration with not being able to establish a FtF relationship with her romantic partner: “We never got past the texting into an actual conversation. In our whole relationship, we talked endlessly through text and that was it.” Meanwhile, other participants echoed the sentiment that the transition from mediated interactions to an actual FtF conversation was a “big jump.” Several individuals also characterized the shift from one mode of communication to another as being awkward, uncomfortable, and intimidating. Thus, it seems that in this context, interference takes the form of difficulty transitioning between TMC and FtF communication.

**Discussion**

The preliminary study provided essential descriptive information that is useful for several reasons. Most important, it provided a sense of how interdependence and interference among communication modes operates in some college students’ relationships. This was instrumental for developing more specific concepts that could be assessed. One prominent aspect of communicative interdependence was the integration of TMC and FtF communication. That is, participants reported extending their discussions back and forth between mediated interactions and in person conversations. Other participants reported experiences that seemed indicative of low communicative interdependence, which included instances when people were able to talk about certain issues comfortably via one mode of communication, but could not extend that to easy communication through another mode. We refer to this notion as mode segmentation, and a key division again appeared to be between FtF and TMC. Finally, interference among communicative modes was evident in instances when individuals had difficulty transitioning between FtF and
TMC. Identifying these three interdependence-related constructs provided us with a basis for examining specific propositions pertaining to the general notions of our communicative interdependence model.

**Main study**

Whereas our main goal was to examine the constructs related to the communicative interdependence perspective, it is important to note that extant literature would suggest that as relationships become closer and more intimate, the relational partners generally would engage in both more FtF interaction and TMC. Both Haythornthwaite’s (2005) media multiplexity research and the empirical findings (Ramirez & Bronneck, 2009) suggest that relational intimacy is linked to the frequency of various modes of communication. On the basis of such scholarship, we expect that:

H1: The frequency of FtF communication will be positively associated with relational closeness and relational satisfaction.

H2: The frequency of TMC will be positively associated with relational closeness and relational satisfaction.

On the basis of the communicative interdependence perspective, our general expectation is that markers of interdependence among modes of communication would be associated with relational closeness and satisfaction. Each of our interdependence-related constructs is somewhat unique, however, so it is necessary to discuss each separately. The first construct was integration of FtF communication and TMC to carry out particular discussions. With respect to this notion of integration between modes, both our theoretical perspective and the data from the preliminary study are consistent with the following hypothesis:

H3: Integration between communication modes will be positively associated with relational closeness and relational satisfaction.

The second indicator of communicative interdependence was the lack of mode segmentation. At first glance, it may appear that interacting about certain topics or issues exclusively by one mode would simply be the inverse of integration, but relational communication does not have a finite sum. That is, a couple could be high in integration generally, but also reserve some topics for certain modes. On the basis of the communicative interdependence perspective, mode segmentation would be expected to be inversely associated with relational closeness and relational satisfaction. Recall, however, that one theme that arose in the preliminary study was that FtF communication may be seen as particularly meaningful. This finding from the preliminary study is consistent with Ramirez and Wang’s (2008) research showing that FtF communication is sometimes considered more relationally important than CMC. Such findings suggest that, although the ideal may be for a couple to be able to interact via multiple modes, it may be perceived as normative for certain topics to be discussed only via particular modes. If FtF is sometimes considered
particularly important, for example, there may be some topics that even close, satisfied couples reserve for FtF discussions. Also, unlike integration (which inherently involves connections between FtF interaction and TMC), the importance of mode segmentation may differ for mediated versus in person modes. In short, although our theoretical perspective suggests that mode segmentation may be related to relational closeness and satisfaction, the exact nature of the associations was unclear; thus, we posed the following:

RQ2: Is the extent of segmentation to mediated channels associated with relational closeness and relational satisfaction?

RQ3: Is the extent of segmentation to in person communication associated with relational closeness and relational satisfaction?

In addition to pointing out how relational partners’ behaviors become more interconnected as they get closer, interdependence theory notes that as people become interconnected, it creates the possibility for partners’ behaviors and actions to interfere with each other’s desires or goals (Berscheid, 1983). Thus, the extent to which partners facilitate or interfere with each other’s goals becomes important to understanding relational development and well-being. Because we conceptualize communication by various modes as potentially interconnected behaviors in relationships, it is also possible that they might interfere with each other. This is consistent with the reports from the preliminary study of people who had a good rapport via one mode of communication but found another more difficult to use. When relational partners’ behaviors interfere with (rather than facilitate) each other’s agendas, it is associated with more negative emotions in relationships (Knobloch, Miller, & Carpenter, 2007), and interference is directly and inversely associated with intimacy (Knobloch & Solomon, 2004). On the basis of such findings that examine relational partners in general, a communicative interdependence perspective would suggest that the extent to which people are able to develop behavioral patterns in which various modes of communication work together and enhance each other (rather than interfere with each other) would be positively related to closeness and satisfaction in the relationship. On the basis of Knobloch and her collaborators’ research on perceived interference in relationships, this would suggest:

H4: Difficulty transitioning between TMC and FtF interaction will be negatively associated with relational closeness and relational satisfaction.

Even if relational closeness and satisfaction are associated with the three constructs associated with communication interdependence (i.e., integration between modes, segmentation, and difficulty transitioning), this would not necessarily demonstrate that these constructs matter apart from the simple amount of communication. Conceptually, the communication interdependence perspective goes beyond the media multiplexity hypotheses, which predict that the amount of communication is associated with relational closeness. Thus, in addition to examining the simple associations between the communication interdependence constructs and satisfaction
and closeness, it is also important to examine whether any such associations hold, even after controlling for the frequency of TMC and FtF interaction. The communication interdependence perspective would suggest:

H5: Any significant associations of integration, segmentation, or difficulty transitioning with relational closeness or relational satisfaction will remain statistically significant, even after controlling for the amount of FtF interaction and TMC.

Method

Participants
The study included 317 undergraduate students who were recruited from communication courses that enroll students from a wide range of majors. Participants received extra credit for participation and were offered alternatives if they were not interested in completing this study. On the basis of those who provided demographic information, the sample included more women (63.4%; n = 201) than men (36.0%; n = 114). The age of participants ranged from 18 to 27 with an average age of 19.83 years (SD = 1.12). The majority of respondents reported being of European American descent (69.4%; n = 220), with others reporting that they were Asian American (12.0%; n = 38), African American (8.8%; n = 28), Latino or Latina (5.0%; n = 16), Other (2.5%; n = 8), and Pacific Islander (.3%; n = 1). Most participants described their relationship with their partner as serious dating partners (41.3%; n = 131), casual dating partners (30.6%; n = 97), and friends (21.8%; n = 69), whereas fewer said they were acquaintances (3.2%; n = 10), coworkers or classmates (2.2%; n = 7), engaged or married (.6%; n = 2).

Procedure
A researcher visited class to announce the study and provide a link to an online survey. The responses were anonymous, and the extra credit was recorded via a separate site that participants could link to upon completing the survey. When completing the survey, participants were asked to consider a particular person with whom they have a romantic relationship or romantic interest. The broad definition of romantic relationship was used to ensure meaningful variation in the perceived closeness of the relationships.

Measures
The frequency of modes of communication was assessed with items that were based on the modes of communication that participants reported in the preliminary study. Specifically, using a 7-point scale that ranged from never (1) to always (7), participants were asked to indicate how frequently they used various channels to communicate with their partner. The channels were drawn from the preliminary study and included: private Internet messaging, public Internet messaging, text messaging, Internet chat, video chat, phone calls, and FtF communication. The six items pertaining to TMC were averaged to create an overall index of the frequency
of TMC ($M = 3.92, SD = 1.11, \alpha = .70$). The average reported frequency for FtF interaction was 5.85 ($SD = 1.27$).

The integration of TMC and FtF index was based on the same channels of communication as the frequencies, but based on descriptions in the preliminary study, the items were constructed to assess the extent to which topics that arose via TMC were discussed FtF (e.g., “When you’re talking with your partner in person [face-to-face], how often do you refer to things you’ve already texted about?”) and vice versa (e.g., “When you’re talking with your partner through text messaging, how often do you refer to conversations you’ve had in person?”). The six mediated channels of interest along with FtF interaction resulted in 12 7-point items ($M = 3.73, SD = 1.02, \alpha = .88$).

Mode segmentation was also assessed with 7-point scales, but these items ranged from strongly disagree (1) to strongly agree (7). There was an item for each of the aforementioned modes, and they asked participants to report on whether there are some issues they discuss exclusively via the various channels (e.g., “There are some topics we only talk about through text messaging.”). The mean for the item about talking only FtF was 5.66 ($SD = 1.68$). The six items about segmenting to a particular mediated technology were averaged to create an index of segmentation to TMC ($M = 2.82, SD = 1.30, \alpha = .82$). Difficulty transitioning between FtF and TMC was assessed with two items, one that asked about transition from in person to mediated communication (“How often do you experience discomfort when transitioning from conversations with your partner that take place in person to technological channels?”) and the other that asked about the reverse transition (“How often do you experience discomfort when transitioning from technological channels to conversations with your partner that take place in person?”). These two items covaried strongly enough that they formed a reliable index ($\alpha = .80$) so they were averaged to create a single index of difficulty transitioning ($M = 2.59, SD = 1.39$).

Relational satisfaction was assessed with nine semantic differential items (e.g., “miserable-enjoyable”) that were adapted from the marital opinion questionnaire (MOQ) (Huston, McHale, & Crouter, 1986). The MOQ has previously been successfully modified to measure satisfaction in romantic but unmarried relationships (e.g., Caughlin & Afifi, 2004), and reliability in this study was excellent ($M = 5.58, SD = 1.07, \alpha = .90$). Relational closeness was measured with five items from the psychological closeness measure reported in Vangelisti and Caughlin (1997), and the reliability was also excellent ($M = 5.81, SD = 1.13, \alpha = .92$).

Results

As expected (H1), the reported frequency of FtF communication was positively associated with relational closeness ($r = .23, p < .01$) and satisfaction ($r = .24, p < .01$). Consistent with the second hypothesis, the reported frequency of TMC was positively associated with both relational closeness ($r = .33, p < .01$) and satisfaction ($r = .19, p < .01$). To examine the overall connection between frequency of communication
and relational closeness and satisfaction, we also conducted regression analyses with the frequency measures entered together. When closeness was regressed on the reported frequencies, the overall model was significant, $F(2, 312) = 26.24, p < .01$, $R^2 = .15$, and both TMC ($\beta = .31, p < .01$) and FtF communication ($\beta = .19, p < .01$) were significant predictors. This suggests that the frequencies of communication via the different modes are not providing redundant information about variation in closeness. Similarly, for satisfaction, the overall model was significant, $F(2, 312) = 14.36, p < .01$, $R^2 = .08$, and both TMC ($\beta = .16, p < .01$) and FtF communication ($\beta = .22, p < .01$) were significant predictors.

As expected (H3), relational closeness was related to integration between TMC and FtF ($r = .12, p < .05$), but there was not any evidence that satisfaction and integration were associated ($r = .01, ns$). Also, consistent with the fourth hypothesis, difficulty transitioning between FtF and TMC was inversely associated with relational closeness ($r = −.20, p < .01$) and satisfaction ($r = −.32, p < .01$).

With respect to the mode segmentation indices, the second research question considered whether talking about certain topics via only mediated channels would be associated with closeness and satisfaction. Relational closeness ($r = −.19, p < .01$) and satisfaction ($r = −.26, p < .01$) were both significantly and negatively associated with talking about certain topics exclusively via a particular mediated channel. However, findings pertaining to segmentation to FtF communication were quite different from those pertaining to segmentation to TMC. Specifically, there was a positive and significant association between talking exclusively FtF and closeness ($r = .17, p < .01$) and a similar association between talking exclusively FtF and satisfaction, although it was not significant at the traditional level ($r = .10, p = .07$).

To test the fifth hypothesis, we conducted two hierarchical regression analyses, with one involving relational closeness and the other satisfaction. Because this hypothesis involved testing whether the constructs associated with the communication interdependence perspective accounted for variation in closeness and satisfaction above and beyond the constructs associated with the media multiplexity perspective, the two frequency variables were entered in the first step and the variables associated with communication interdependence entered in the second step.

When closeness was regressed on the two frequency variables, the model was significant, $F(2, 310) = 26.25, p < .01$, $R^2 = .15$. The second step accounted for a significant amount of variance in closeness beyond the frequency measures, $F$-change $(4, 306) = 13.86, p < .01$, $R^2$-change = .13. Table 1 summarizes the associations in the final model after all the variables were added. The amount of TMC was positively associated with closeness, but there was not a significant association between the amount of FtF interaction and closeness. Consistent with the fifth hypothesis, integration of TMC and FtF and communicating only via FtF were positively associated with closeness and difficulty transitioning and communicating only by TMC were negatively associated with closeness.

The regression involving satisfaction also was consistent with the fifth hypothesis. The first step with the frequency variables was statistically significant, $F(2,
Table 1  Standardized Regression Coefficients With Closeness and Satisfaction Regressed on Frequency of Modes and Interdependence of Modes

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<td>Difficulty transitioning</td>
<td>-.19**</td>
<td>-.28**</td>
</tr>
<tr>
<td>Communicating only by TMC</td>
<td>-.27**</td>
<td>-.24**</td>
</tr>
<tr>
<td>Communicating only FtF</td>
<td>.17**</td>
<td>.07</td>
</tr>
</tbody>
</table>

FtF = face-to-face; TMC = technologically mediated communication.
* p < .05. ** p < .01.

310) = 12.88, p < .01, $R^2 = .08$. Adding the variables associated with communication interdependence accounted for significant additional variance in satisfaction, $F$-change (4, 306) = 16.07, $p < .01$, $R^2$-change = .16. Consistent with the correlations reported above, difficulty transitioning and communicating about some topics exclusively through TMC were inversely associated with satisfaction, and the associations involving integration and communicating only FtF were not significant. Overall, these results indicate that the associations of the communication interdependence constructs with closeness and satisfaction are not artifacts of the frequency of communication.

Discussion

Overall, two broad generalizations can be made about the findings presented here. First, the results provide support for media multiplexity theory (Haythornthwaite, 2005) and previous findings suggesting that both FtF interaction and TMC are related to the closeness and quality of relationships (Baym & Ledbetter, 2009; Baym, Zhang, & Lin, 2004; Ramirez & Broneck, 2009). Consistent with the media multiplexity perspective, both technologically mediated interactions and in person conversations were associated with relational closeness and satisfaction. Moreover, when entered in a regression together, both FtF and TMC accounted for unique variance in closeness and satisfaction. These results bolster calls for scholars to pay more attention to both FtF interaction and TMC simultaneously (Baym, 2009; Walther, 2011). Rather than people replacing FtF with TMC or vice versa, it appears that in closer and more satisfying relationships, they communicate more generally, both in person and via technologies.

In addition to providing further evidence in support of a media multiplexity approach, this article introduces a communicative interdependence approach to understanding mediated and nonmediated communication in close relationships. The key proposition of this perspective is that it is not enough to simply observe
that, compared to more distant relationships, people in close relationships interact more via both mediated and in person modes. Instead, based on what we know about behavioral interdependence generally in relationships, it is important to recognize the potential for the different modes of interaction to function well together or to interfere with each other (e.g., see Berscheid, 1983; Knobloch & Solomon, 2004). To truly understand the importance of mediated communication within close relationships, we need to understand the connections between communication via different modes. This study represents a first step toward that understanding.

On the basis of our communicative interdependence perspective, we proposed three indices of communicative interdependence in relationships. Communicative interdependence is considered high to the extent that integration of TMC and FtF is high, the difficulty transitioning from one mode to another is low, and the extent of mode segmentation is low. Overall, this study was consistent with the notion that communicative interdependence is associated with relational closeness and satisfaction, and these findings held above and beyond the impact of the amount of communication in person and via mediated channels. Specifically, even with the frequency measures controlled, integration of TMC and FtF interaction was associated positively with closeness, difficulty transitioning between modes was significantly and negatively associated with relational closeness and satisfaction, and mode segmentation that involved only talking about certain topics by mediated channels was significantly and inversely associated with both closeness and satisfaction (see Table 1). Such findings are consistent with the communicative interdependence perspective, demonstrating that the associations with communicative interdependence do not appear to be artifacts of simply communicating more.

There was one set of findings that was distinct from the others: mode segmentation to FtF only was positively associated with reports of closeness and satisfaction (and the association remained significant for closeness with the frequency variables controlled). Although this is not what one would predict based on the communicative interdependence model, it is consistent with a number of comments in the preliminary study, which suggested that many college students view FtF communication, or the ability to have pleasant FtF interaction, as particularly diagnostic of relational status. These findings are also similar to Ramirez and Wang’s (2008) findings that people transitioning from CMC to FtF sometimes find the FtF more relationally important, but this study extends the previous findings past the initial phases of becoming acquainted to include a wide range of romantic relationships. Overall then, the results are consistent with the communicative interdependence perspective, with the caveat that individuals appear to accept (and even feel particularly close) having some topics that they only discuss FtF in their romantic relationships. That is, it appears that people who are more close in their relationships tend to generally exhibit more signs of interconnections between TMC and FtF communication, but still reserve a few topics for FtF communication, perhaps because FtF communication retains a special status.

The most obvious implication of the current findings is that it is important to attend to the interconnections between TMC and FtF communication. This article is
not the first to argue this point (e.g., Baym, 2009), but it provides clear evidence that these interconnections matter in college students’ romantic relationships. Despite being obvious, this implication has potentially profound implications for how we study interpersonal communication in close relationships. Many scholars and many studies still focus on either some form of TMC (such as CMC) or on FtF interaction, but the current results indicate that much may be gained by not only considering both simultaneously but also considering how TMC and FtF are both interwoven together into the tapestry of relational communication.

Given that interconnections between TMC and FtF communication seem to matter, this provides an important and rich conceptual space for future work. This study selected three aspects of communicative interdependence that were theoretically prominent, and these were useful in demonstrating the empirical importance of considering the integration of multiple modes of communication in romantic relationships. Yet it is important to recognize that these are very broad indices of such interdependence and more detailed descriptions of interdependence would likely be useful. For example, it is likely that not every medium used for interpersonal communication is interconnected in the same way. The richness of various media (i.e., the extent to which they allow instant feedback, multiple cues, and unfettered linguistic choices) can play a role in the development of relationships (Sheer, 2011). Thus, it is reasonable to assume that media of varying richness may be interconnected in varying ways with each other and with FtF communication.

Moreover, additional work is needed about precisely how relational partners use TMC and FtF communication in relation to each other. Our measure focused on how topics that arise in one mode are taken up via other modes, but that is only one way in which modes are used together. People may also use technologies to set up meetings in person (e.g., calling to find where a partner is after class); they may use technology to have a private side conversation with one person while excluding others (e.g., texting just one other person in a group discussion); they may use technologies to aid them during the conversation (e.g., using a smartphone to look up information during a conversation); and so forth.

Because communication with different modes is interconnected, it is likely that communication that occurs via one mode can shape the very meaning of communication that happens via another mode. Consider, for instance, the case of a couple having a conflict in person and one partner attempts to yell out the last words before storming out of the house. It may have made sense to analyze what that episode meant on its own (or only in relation to their next FtF encounter) prior to the ubiquity of mobile phones and other contemporary communication devices, but now the meaning of that episode can be influenced in many ways by how the couple continues to communicate while physically apart. If the person who storms out soon receives a text saying, “You are still wrong, and you’ll always be wrong,” it would make clear that the attempt to get “the last word” was not successful. If instead, there is a text that says, “Honey, I love you. Please come back so we can work this out,” it probably should change the meaning of the previous FtF interaction in a
different way. Or, if despite having many technological means to contact each other, neither sends any message for many hours while the partner is gone, it may foster an entirely different impression of what that conflict in person meant. Obviously, this is a hypothetical example, but it illustrates the point that the very meaning of FtF interaction can be shaped by TMC.

The reverse, of course, may also be true. As suggested by some participants in our preliminary study and prior research on modality switching from online to offline contact (Ramirez & Wang, 2008; Ramirez & Zhang, 2007), two people who have not yet had FtF encounters with a potential partner can have an ostensibly very intimate interaction via texting or instant messaging, but that does not mean they have established intimacy. Any subsequent FtF encounter may help define what the previous TMC means to them. If a dyad who disclosed deeply and flirted heavily continues such intimate behaviors when they have a FtF conversation, they may view that original TMC as hyperpersonal in the sense that it accelerated the intimacy of their interaction and relationship in a way that may not have happened in person (see Walther, 1996). Yet the exact same behaviors would mean something very different to the individuals and to their relationship if the subsequent interaction in person was awkward. On the basis of the communicative interdependence perspective, we would expect that, even if some form of TMC appeared objectively hyperpersonal, the interactants would view it as something less than truly intimate if they were unwilling or unable to integrate those TMC behaviors with congruent ones if they meet in person.

Final thoughts

It is important to recognize that the results presented here were drawn from a sample of college students reporting on romantic relationships and interests. Although the communicative interdependence perspective presented here is conceptually applicable to any type of relationship, it is important that future research actually examine other types of relationships to determine whether similar results emerge. Contemporary college students may use communication technologies more than other groups do (Mcmillan & Morrison, 2006; Smith, Rainie, & Zickuhr, 2011), and therefore integrating technologies into their communication may be more important to their relationships than is the case for other groups. If college students are particularly invested in communication technologies in their relationships, however, it would only magnify the importance of the findings suggesting that reserving some topics for in person interactions is related to closeness and satisfaction. If even this technologically oriented group tends to be closest and most satisfied if some interactions happen in person, it suggests that the value placed on some FtF encounters is particularly powerful.

Regardless of any particular limitations of the research presented here, the implications of this line of work are potentially wide ranging. The results provide compelling evidence that it is not merely the case that people are now communicating
both in person and via various technologies; instead, the very quality and success of contemporary relationships may be influenced by how people use various modes of communication together. The communicative interdependence perspective articulated here provides a useful way of conceptualizing those connections, but there is much more work to be done in understanding the various ways that communication modes integrate with and interfere with each other in close relationships.

Acknowledgments

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Notes

1 To ensure that the results were not due to including people with romantic interests in the study, the main analyses were repeated, excluding the participants without existing romantic relationships. The findings were very similar to those reported here. Details are available from either author. On a similar note, additional analyses were conducted to determine if the associations presented here were due to how long the people knew each other, and there was no evidence that the length of the relationship caused a confound in the study.

2 Participants were instructed to respond with “never” if they did not use a particular communication channel in their relationship.

3 All of the measures created for this study were indexes. Unlike scales, the items in an index are causal indicators of a construct and, as such, are not necessarily assumed to correlate with one another (see Bollen & Lennox, 1991; Streiner, 2003). Given that items need not be associated, techniques that rely on assessments of covariations (e.g., factor analysis, reliability indices) are ill-suited for assessing the merit of an index (Streiner, 2003). Although we report Cronbach’s $\alpha$ for each of our measures, we do so solely for descriptive purposes.

4 The response option “strongly disagree” was intended to capture participants who did not segment their communication to a certain mode. It included, but was not limited to, those who did not communicate through the channel being referenced.

References


