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Individual differences in attachment are associated with usage and perceived intimacy of different communication media

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ABSTRACT

Effective communication is vital to the health and functioning of romantic relationships. Technology use is becoming more pervasive, making it more important than ever to understand which forms of media enhance communication in close relationships. People differ in which communication methods they prefer, and it is important to understand how people perceive and use various media. Our study uses an attachment theory framework to explore how people perceive the intimacy of different media and their preferred methods of communication with romantic partners. We collected online survey data from partnered individuals regarding their romantic attachment orientation, perceptions of the intimacy of various media (face-to-face, phone call, text message, email), and preferred use of those media for communicating with romantic partners. People with a more avoidant attachment orientation (i.e., who prefer self-reliance over interdependence) were less likely to prefer communication methods that are generally perceived as more close and immediate (e.g., face-to-face); however, our findings suggest that avoidant individuals prefer not to use these methods because they perceive them to be *less* intimate and *less* likely to resolve interpersonal conflicts. Our findings suggest that certain forms of communication may be more beneficial for avoidant individuals and their romantic relationships.

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1. Introduction

Effective communication is vital to the health and functioning of romantic relationships (Vangelisti, 2015). Couples frequently engage in face-to-face communication with one another as a way to maintain their relationships (Billedo, Kerkhof, & Finkenauer, 2015). However, communication is not limited only to face-to-face interactions; technology has become an increasingly popular way for romantic partners to communicate. For instance, over 82% of young adults report that they check in with their romantic partner multiple times a day via text messaging (Schade, Sandberg, Bean, Busby, & Coyne, 2013). As couples increasingly communicate using different forms of technology, it is more important than ever to understand which channels of communication may be most beneficial for individuals and their romantic relationships.

Ostensibly, people likely consider communication via certain

forms of technology to be more intimate than others. For example, most would agree that receiving a romantic rejection via a telephone conversation is probably more intimate than receiving such information through a text message. Do our assumptions about the intimacy of different kinds of technology map onto people's actual perceptions of intimacy? As yet, only limited research has addressed such issues. Specifically, we do not yet have empirical evidence to support the hypothesis that certain forms of technology are perceived to be more intimate than others, or that more intimate technologies are used more often than less intimate technologies. The current study addresses these questions by assessing how people perceive the intimacy of different forms of communication and how those perceptions are associated with their preference to use those communication media. Further, although communication is clearly necessary in romantic relationships, there are important individual differences in the extent to which people feel comfortable with close and intimate contact (Brennan, Clark, et al., 1998; Brennan, Wu, et al., 1998). Adult attachment orientation, or an individual's characteristic approach toward close relationships (Brennan, Clark, et al., 1998), can help us understand how people choose to communicate with their

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romantic partner.

We used an attachment theory framework to address several questions about individual differences in technology's role in communication in close relationships. First, we explored how often people use different forms of technology (frequency), how intimate they consider different forms of technology (perceived intimacy), and which technology they would prefer to use when communicating with their partners (preference). Second, we examined whether participants preferred a particular technology medium to communicate positive information (saying, "I love you" to a partner) versus negative information (arguing with a partner) and the degree to which participants considered a conflict resolved using a particular medium. Finally, we examined attachment-related differences in frequency, perceived intimacy, and preferences for different technologies. We focused on face-to-face communication, phone calls, text messaging, and email messaging because previous research had identified these methods as the most common forms of communication in romantic relationships (Jin & Peña, 2010; Luo, 2014; Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013).

In the following sections, we briefly review the relevant links between adult attachment and communication.

1.1. Adult attachment and communication media

Attachment orientation can influence important aspects of communication in romantic relationships (e.g., emotional responses to relationship-challenging events; Niehuis, Reifman, Fischer, & Lee, 2015); however, relatively little is known about how attachment orientation is associated with use of technology in romantic relationships. Attachment theory was originally conceptualized to describe the emotional bond between an infant and his or her primary caregiver and the anxiety that occurs upon separation from that caregiver (Bowlby, 1969). Psychologists later noted the many similarities between a child's first relationship with caregivers and subsequent relationships with romantic partners (Hazan & Shaver, 1987). Over the last several decades, these observations have contributed to the emergence of attachment theory as a dominant framework for understanding thoughts, feelings, and behaviors in romantic relationships across the lifespan (Cassidy & Shaver, 2008). Attachment researchers also highlight the importance of individual differences in the quality of close relationships across the lifespan, otherwise known as *attachment orientation*.

An individual's attachment orientation is conceptualized by their position on two relatively independent dimensions: attachment-related avoidance and anxiety (Fraley & Waller, 1998). *Attachment avoidance* is characterized by discomfort with closeness and intimacy (Edelstein et al., 2004). Highly avoidant individuals tend to be less invested in their romantic relationships; they are less responsive to their partner's needs and strive to maintain emotional independence from their partner (Fraley, Davis, & Shaver, 1998). *Attachment anxiety* is characterized by concerns and fears of abandonment (Campbell & Marshall, 2011). Highly anxious individuals tend to worry about losing their partner, are sensitive to signs of rejection, and tend to be highly invested, overinvolved, and controlling in their romantic relationships (Feeney & Collins, 2001). Individuals who report low levels of both avoidance and anxiety are considered *secure* and feel comfortable depending on and trusting their romantic partner.

Individual differences in attachment have been linked with communication strategies in close relationships in theoretically consistent ways. For instance, in romantic relationships, avoidant individuals tend to shy away from forms of communication that (presumably) allow for greater closeness and intimacy. Morey et al. (2013), for example, found that avoidant individuals are less likely to use phone calls and text messaging and more likely to use email

messaging to communicate with their romantic partners. Perhaps surprisingly, Morey et al. (2013) found that, for avoidant individuals, greater use of text messaging with relationship partners was associated with more positive relational outcomes (i.e., greater relationship satisfaction and intimacy/support) and greater use of email was associated with greater relationship conflict. These findings suggest that avoidant individuals might use methods of communication that lead to more relationship conflict, or perhaps they perceive relationships as more conflictual and thus are more likely to use more "distant" forms of communication. Based on these findings, we hypothesized that avoidant individuals would be more likely to use and prefer email and less likely to use and prefer face-to-face, phone call, and text messaging to communicate with their partner. We expected these associations would hold regardless of whether the content of the message they were communicating was positive or negative.

Attachment anxiety is associated with more ambivalent motivations for technology use. In some cases, similar to patterns found for avoidant individuals, anxious individuals report less frequent phone use in romantic relationships (Morey et al., 2013). In other cases, attachment anxiety has not been related to use of technology in romantic relationships, such as phone calls and/or text messaging (Drouin & Landgraff, 2012; Jin & Peña, 2010; Luo, 2014; Weisskirch, 2012). The inconsistent (and often lack of) associations between anxiety and technology may not be surprising in light of anxious individual's relational motivations. In some circumstances, technology use could exacerbate some of anxious individuals' anxieties if their desire for intimacy is not reciprocated (Emery, Muise, Dix, & Le, 2014). On the other hand, anxious people could be dissatisfied with any type of communication. Based on the competing motivations of anxiously attached individuals, no specific predictions were made about the relationship between attachment anxiety and perceptions of technology.

In the current study, we examined how individual differences in adult attachment orientation were associated with people's perceptions of intimacy, frequency of use, and preference for different methods of communication with a romantic partner. Most previous research on attachment and technology use in romantic relationships has focused on the frequency with which individuals use various forms of communication (e.g., Luo, 2014). Morey et al. (2013), for example, suggest that avoidant individuals use the forms of communication that preserve a comfortable amount of distance with their romantic partner. However, these authors did not directly assess how intimate (close or distant) participants considered each form of communication. Are people more likely to use a technology with their partner because they find it more or less intimate, and does preference vary as a function of attachment orientation? The current research seeks to examine these questions. Additionally, the little work to date that has examined attachment orientation and frequency of technology use in romantic relationships has often been limited by the fact that their samples included primarily college undergraduates and women (e.g., Jin & Peña, 2010; Morey et al., 2013). Further, these studies often failed to account for the valence (positive or negative) of the communication between partners and did not directly measure how effective participants consider different technologies (e.g., for resolving relationship conflict). Our study extends previous research by documenting which forms of media are considered more "distant" versus "intimate", examines the potential mechanisms that account for the association between attachment orientation and preferences for different media, includes both men and women, and is more diverse with respect to age and relationship experiences.

We hypothesized that avoidant individuals would be *more* likely to use and prefer email and *less* likely to use and prefer face-to-face,

phone call, and text messaging to communicate with their partner. We also predicted that avoidant individuals perceive more “distant” forms of communication (text messaging and email messaging) as *more* intimate but perceive face-to-face interactions as *less* intimate compared to less avoidant individuals. Based on the competing motivations of anxiously attached individuals, no specific predictions were made about the association between attachment anxiety and perceptions of technology when communicating positive and negative information.

2. Method

2.1. Participants

A sample of 328 participants (57.3% female) was recruited via Amazon’s Mechanical Turk (MTurk; [Buhrmester, Kwang, & Gosling, 2011](#)) as part of a larger study of communication in romantic relationships. Participants were compensated \$.15, which is comparable to other studies implemented on MTurk ([Buhrmester et al., 2011](#)). Participation was limited to people currently in a romantic relationship. Participants were between the ages of 17 and 68 ($M = 31.97$ years, $SD = 10.26$ years). They self-reported their ethnicities, which we classified as: 45.4% Caucasian, 39.7% Asian or Asian American, 5.8% Black or African American, 4.3% Hispanic, 2.1% of mixed or other ethnicities, 1.5% Pacific Islander, and 1.2% Native American. Fifty-six percent of participants held at least a bachelor’s degree or higher. The majority (86.6%) of participants identified as heterosexual, 43% were married to their romantic partner, 11.9% were engaged, 42.4% were dating, and 2.7% selected “other” for their relationship status. Length of participants’ romantic relationships ranged from 1 month to 41 years ($M = 6.68$ years, $SD = 7.14$ years) and 63% of the sample were currently living together. Of those who did not live together, the majority (83%) lived within 100 miles from each other.

2.2. Procedure and materials

2.2.1. Attachment orientation

Participants first completed the Experiences in Close Relationships Inventory (ECR; [Brennan, Clark, et al., 1998](#); [Brennan, Wu, et al., 1998](#)), which was used to assess adult attachment orientations. The 18-item *avoidance* subscale ($\alpha = .91$) reflects an individual’s discomfort with intimacy. A sample item for avoidance is, “Just as my partner starts getting close to me I find myself pulling away.” The 18-item *anxiety* subscale ($\alpha = .91$) reflects an individual’s fear of abandonment. A sample item for anxiety is, “I find that my partner doesn’t want to get as close as I would like.” Participants rated the extent to which they agreed with statements on both subscales, using a 7-point Likert-type scale, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*).

2.2.2. Communication medium

Participants were asked about their use of four communication media: (1) face-to-face (including in-person, Skype, and video chat meetings), (2) phone call, (3) text messaging, and (4) email. First, they were asked how often they used each medium: “In general, how often do you use the following forms of communication?” Participants reported how frequently they used each medium on an 8-point Likert-type scale: 1 = *never*, 2 = *less than once a month*, 3 = *once a month*, 4 = *2–3 times a month*, 5 = *once a week*, 6 = *2–3 times a week*, 7 = *daily*, 8 = *multiple times per day*. The second question assessed how intimate they considered each communication medium: “In general, how intimate do you find each form of communication below?” Participants reported how intimate they considered each medium on a 7-point Likert-type scale:

1 = *extremely non-intimate*, 2 = *non-intimate*, 3 = *somewhat non-intimate*, 4 = *neutral*, 5 = *somewhat intimate*, 6 = *intimate*, 7 = *extremely intimate*.

2.2.3. Positive and negative interactions

Participants were randomly assigned to one of two conditions using Qualtrics Survey Software. In the *positive* condition, participants were asked about their use of each communication medium when communicating to *their partner* that they love him/her. In the *negative* condition, participants were asked about their use of each communication medium when having an argument *with their partner*. Participants provided the name and gender of their romantic partner, which was later piped into questions about media use (i.e., “When you tell *Sarah* that you love *her*, how often do you use...”) and “When arguing with *Sarah*, how often do you use...”, italicization not seen by participants).

In both conditions, the frequency of use and preference for use of each medium were assessed. For each condition, we asked participants how often they used each medium with their partner (i.e., face-to-face, phone call, text messaging, email) using a 5-point Likert-type scale: 1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, 5 = *all of the time*. Participants also rated how much they preferred to use each medium with their partner in a particular situation (e.g., “When telling *Sarah* that I love *her*, I prefer to use...”) on a 5-point Likert-type scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*. In the negative condition, participants also reported how much they felt that the argument was resolved with their partner using each of the media on a 5-point Likert-type scale: 1 = *not at all*, 2 = *a little bit*, 3 = *somewhat*, 4 = *mostly*, 5 = *completely*.

2.3. Data analytic plan

We began by examining bivariate associations between attachment orientation and frequency, perceived intimacy, and preference for different communication media (face-to-face, phone calls, text messaging, and email). Multivariate regressions were then conducted to examine the proportion of the variance in frequency of use and perceived intimacy of these methods explained by attachment-related avoidance and anxiety after controlling for demographic factors. Finally, we examined whether links between attachment orientation and preferences for communication methods were attributable to (i.e., were mediated by) how intimate and effective people consider each communication medium to be.

3. Results

3.1. Overall usage and perceived intimacy of each medium

With the exception of text messaging, perceived intimacy of the medium was positively correlated with frequency of use of that medium (see [Table 1](#)). This suggests that people generally use media that they also consider more intimate. Notably, people used some media more than others and thought that some forms of media were more intimate than others. To examine these differences, we began by examining how often participants used each medium and whether there were mean differences in perceived intimacy of each medium. We conducted a within-subjects ANOVA to compare the frequencies of use and perceived intimacy of each medium.

As shown in [Fig. 1](#), participants tended to use text messaging the most, followed by phone conversations, then face-to-face interactions, and then email messages, $F(3, 972) = 29.36$, $p < .001$. Post-hoc analyses revealed significant differences between each medium type, all $ps < .007$.

Table 1
Correlations among overall frequency of use and perceived intimacy of medium.

| | Mean (SD) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---------------|---------------|-------|--------|--------|-------|------------------|-------|-------|-------|-------|-------|-------|
| 1. Gender | | | | | | | | | | | | |
| 2. Age | 31.97 (10.26) | .01 | | | | | | | | | | |
| 3. Avoidance | 3.77 (1.30) | .09 | -.14* | | | | | | | | | |
| 4. Anxiety | 2.60 (1.15) | .15** | -.28** | .39** | | | | | | | | |
| 5. Freq of FF | 6.00 (2.15) | .04 | -.06 | -.09 | -.03 | | | | | | | |
| 6. Freq of PC | 6.35 (1.50) | .06 | .04 | -.20** | -.09 | .20** | | | | | | |
| 7. Freq of TM | 6.65 (1.57) | -.05 | -.15** | -.14* | -.01 | .10 ^t | .30** | | | | | |
| 8. Freq of EM | 5.47 (2.06) | .08 | .15** | -.01 | .01 | -.06 | .25** | .19** | | | | |
| 9. Int of FF | 5.48 (1.49) | -.06 | -.13* | -.22** | -.06 | .30** | .15** | .14* | .00 | | | |
| 10. Int of PC | 5.03 (1.30) | .04 | -.04 | -.02 | .06 | .03 | .26** | .09 | .06 | .24** | | |
| 11. Int of TM | 4.15 (1.69) | .17** | -.19** | .22** | .30** | -.07 | .06 | .01 | .08 | .05 | .48** | |
| 12. Int of EM | 3.74 (1.76) | .18** | -.05 | .29** | .27** | -.06 | .05 | -.04 | .31** | -.03 | .37** | .65** |

Note. Ns range from 315 to 328. ^t $p < .10$, * $p < .05$, ** $p < .01$. Freq = Overall Frequency of Use; Int = Overall Perceived Intimacy; FF = Face-to-Face; PC = Phone Call; TM = Text Message; EM = Email Message. Gender codes: 1 = women, 2 = men.

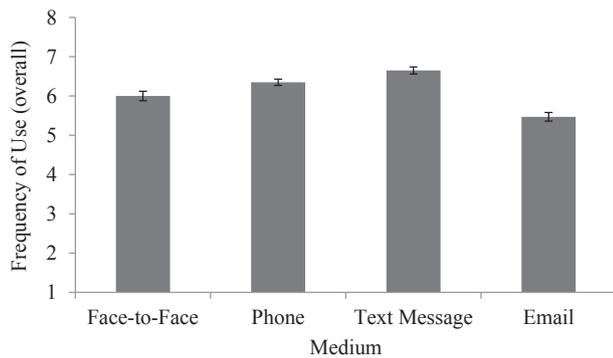


Fig. 1. Mean differences in overall frequency of use of each medium. Error bars represent ± 1 standard error of each mean.

In support of our hypothesis, participants considered face-to-face interactions the most intimate, followed by phone conversations, text messages, and email messages, $F(3, 966) = 115.92$, $p < .001$. This pattern is shown in Fig. 2. Post-hoc analyses revealed significant differences between each medium type, all $ps < .001$.

3.2. Attachment-related differences in overall frequency of use and perceived intimacy of medium

Correlations among age, gender, attachment orientations, and frequency of use and perceived intimacy of each medium are presented in Table 1. Avoidant individuals reported less frequent use of phone calls and text messaging. Attachment anxiety was unrelated

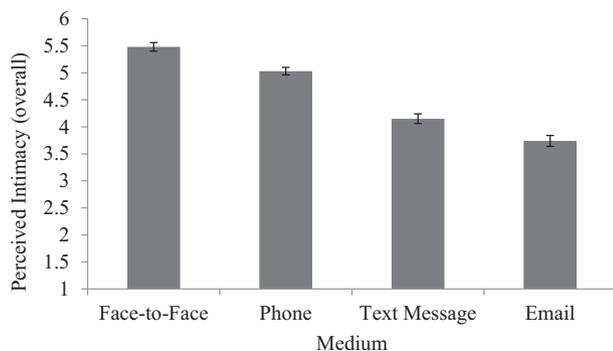


Fig. 2. Mean differences in overall perceived intimacy of each medium. Error bars represent ± 1 standard error of each mean.

to the frequency of use of different media. People who were older were less likely to use text and more likely to use email messaging compared to those who were younger.

As predicted, more avoidant individuals perceived more “distant” forms of communication (i.e., text messaging and email messaging) as more intimate but perceived face-to-face interactions as less intimate compared to less avoidant individuals. Likewise, more anxious individuals perceived more distant forms of communication as more intimate compared to less anxious individuals. Compared to men, women considered text messaging and email messaging to be more intimate. People who were older also reported that face-to-face interactions and text messaging were less intimate compared to those who were younger.

Because age, gender, attachment anxiety, and attachment avoidance were intercorrelated, we next regressed attachment-related anxiety and avoidance on frequency of use and perceived intimacy of each medium separately, while controlling for age and gender. Results from these analyses were largely consistent with those found in the bivariate correlations and are presented in Table 2.

3.3. Does medium use with a partner depend on communicating positive or negative information?

We began by examining (1) how often participants used each medium when communicating positive information (saying, “I love you” to a partner) versus negative information (arguing with a partner), (2) which medium they preferred when communicating positive versus negative information and, (3) in the negative condition, the degree to which participants considered a conflict resolved using a particular medium. We conducted within-subjects ANOVAs to examine the frequencies of use and preferred use for each medium and whether frequency and preferred use differed by condition. The between-subjects main effect of condition (positive vs. negative information), within-subjects main effect of medium (face-to-face, phone calls, text messages, email messages), and

Table 2
Regressions predicting overall frequency of use and perceived intimacy from avoidance and anxiety.

| | Overall frequency of use | | Overall perceived intimacy | |
|--------------|--------------------------|---------------------|----------------------------|---------------------|
| | Avoidance (β) | Anxiety (β) | Avoidance (β) | Anxiety (β) |
| Face-to-Face | -.09 | -.01 | -.24** | -.001 |
| Phone | -.19** | -.01 | -.06 | .07 |
| Text Message | -.16** | .01 | .11 ^t | .21** |
| Email | -.03 | .06 | .21** | .19** |

Note. Analyses control for age and gender ^t $p < .10$, * $p < .05$, ** $p < .01$.

their interaction were entered as predictors of frequency of use and preferred use.

3.3.1. Frequency of use (with partner)

As shown in Fig. 3, there was a main effect of condition predicting frequency of use, such that participants reported using each medium more frequently when communicating positive versus negative information to their partner, $F(1,322) = 29.58, p < .001; ts > 2.28, ps < .02$. There was also a main effect of medium, such that participants communicated with their partner using face-to-face interactions the most, followed by phone calls, text messages, and email messages, $F(3,966) = 119.05, p < .001$. The medium \times condition interaction was not significant, $p = .28$, suggesting that relative frequency of use was similar across conditions.

3.3.2. Preferences for use (with partner)

As shown in Fig. 4, there was a main effect of condition predicting preferences, such that participants reported a greater preference for using each medium when communicating positive versus negative information to their partner, $F(1, 320) = 74.45, p < .001$. There was also a main effect of medium type, such that participants preferred to use face-to-face interactions the most, followed by phone calls, text messages, and email messages, $F(3, 960) = 165.87, p < .001$. A significant medium \times condition interaction emerged, suggesting that preferences differed when communicating positive versus negative information, $F(3, 960) = 10.65, p < .001$. Decomposing this interaction revealed that participants preferred using phone calls, text messages, and emails more when communicating positive than negative information to their partner, $ts > 4.70, ps < .001$. However, participants had a similar preference for face-to-face interactions in the positive and negative conditions, $p = .20$.

3.3.3. Perceived resolution (with partner)

As shown in Fig. 5, participants considered arguments with their partner most often resolved when engaged in face-to-face interactions, followed by phone conversations, then text messaging, and email, $F(3, 465) = 100.23, p < .001, ts > 6.13, ps < .001$.

3.4. Are there attachment-related differences in use and preferences depending on whether one is communicating positive or negative information to a partner?

To examine whether attachment orientation predicted use and preferences when communicating positive versus negative information to a partner, we conducted regression analyses testing the moderating role of condition ($-1 =$ negative, $1 =$ positive) on each

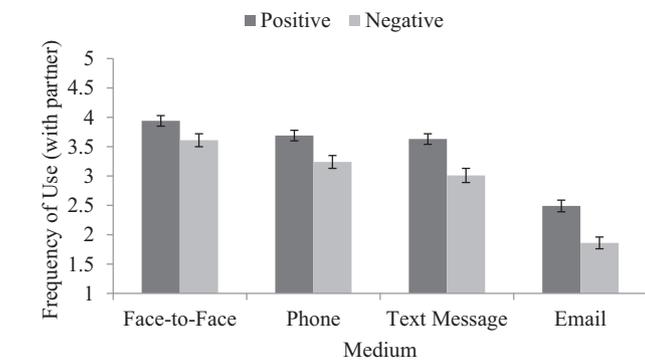


Fig. 3. Mean differences in frequency of use of each medium when communicating positive and negative information to a partner. Error bars represent ± 1 standard error of each mean.

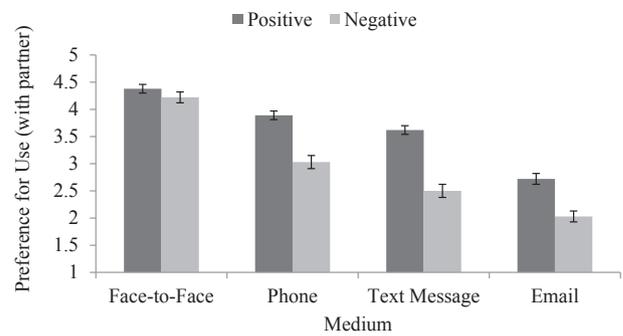


Fig. 4. Mean differences in preference for each medium when communicating positive and negative information to a partner. Error bars represent ± 1 standard error of each mean.

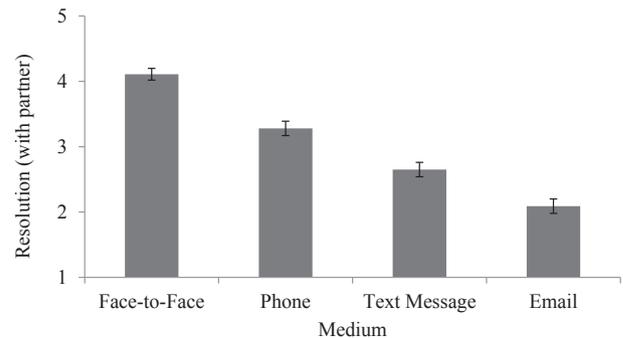


Fig. 5. Mean differences in each medium for whether a conflict with a partner is resolved. Error bars represent ± 1 standard error of each mean.

outcome for each medium separately. Specifically, avoidance, anxiety, condition, and the interactions between attachment orientations and condition were predictors of frequency of use, preferences of use, and perceived resolution resulting from each medium. The perceived resolution question was only asked in the negative condition (about communicating during an argument). As in previous analyses, age and gender were added as covariates.

3.4.1. Frequency of use (with partner)

As shown in Table 3, consistent with previous analyses, participants reported using each medium more often when communicating positive versus negative information to their partner. Higher avoidance predicted greater use of email when communicating with partners. Greater anxiety predicted greater use of phone calls, text messaging, and email when communicating with partners. For the most part, none of these effects were moderated by condition, suggesting that these associations characterize attachment behavior when communicating both positive and negative information. The only exception was a significant anxiety \times condition interaction predicting text messaging. Decomposing this interaction revealed that anxious individuals reported using text messaging more when communicating negative information, $\beta = .26, p = .005$, but not when communicating positive information, $\beta = .05, p = .52$.

3.4.2. Preferences for use (with partner)

As shown in Table 4, participants preferred to use nearly every medium more when communicating positive versus negative information to their partner. Consistent with previous analyses, the one exception was face-to-face communication, which did not differ by condition. Avoidance predicted a preference away from

Table 3
Regressions Predicting Frequency of Use (with partner) from Avoidance, Anxiety, and Condition.

| | Face-to-Face | | | | | Phone | | | | |
|------------------------------|----------------|-----------|---------|----------|----------|----------|-----------|---------|----------|----------|
| | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> |
| Avoidance | -.05 | .07 | -.04 | -.69 | .49 | -.02 | .07 | -.01 | -.24 | .81 |
| Anxiety | -.08 | .06 | -.08 | -1.28 | .20 | .13 | .06 | .13 | 2.16 | .03 |
| Condition | .15 | .07 | .11 | 2.01 | .05 | .22 | .07 | .17 | 3.07 | .002 |
| Avoidance \times Condition | .02 | .07 | .02 | .28 | .78 | -.08 | .07 | -.07 | -1.23 | .22 |
| Anxiety \times Condition | .05 | .06 | .05 | .81 | .42 | -.03 | .06 | -.03 | -.48 | .63 |
| Age | .01 | .01 | .04 | .64 | .53 | -.02 | .01 | -.14 | -2.45 | .02 |
| Gender | .04 | .07 | .03 | .51 | .61 | -.12 | .07 | -.10 | -1.72 | .09 |
| | Text Messaging | | | | | Email | | | | |
| | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> |
| Avoidance | -.02 | .07 | -.02 | -.26 | .79 | .24 | .06 | .20 | 3.72 | <.001 |
| Anxiety | .16 | .06 | .15 | 2.61 | .01 | .22 | .06 | .22 | 3.86 | <.001 |
| Condition | .29 | .07 | .22 | 4.20 | <.001 | .30 | .07 | .23 | 4.60 | <.001 |
| Avoidance \times Condition | .04 | .07 | .03 | .59 | .56 | .07 | .06 | .06 | 1.10 | .27 |
| Anxiety \times Condition | -.12 | .06 | -.11 | -2.00 | .05 | -.03 | .06 | -.03 | -.60 | .55 |
| Age | -.04 | .01 | -.27 | -5.01 | <.001 | -.002 | .01 | -.02 | -.31 | .75 |
| Gender | -.10 | .07 | -.07 | -1.38 | .17 | -.24 | .07 | -.18 | -3.55 | <.001 |

Note. Gender codes: -1 = Men, 1 = Women. Condition: -1 = Negative, 1 = Positive.

Table 4
Regressions Predicting Preferences for Use (with partner) from Avoidance, Anxiety, and Condition.

| | Face-to-Face | | | | | Phone | | | | |
|------------------------------|----------------|-----------|---------|----------|----------|----------|-----------|---------|----------|----------|
| | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> |
| Avoidance | -.15 | .06 | -.16 | -2.65 | .009 | -.11 | .10 | -.06 | -1.06 | .29 |
| Anxiety | -.07 | .05 | -.08 | -1.26 | .21 | -.14 | .09 | -.09 | -1.53 | .13 |
| Condition | .06 | .06 | .06 | 1.07 | .29 | .55 | .11 | .27 | 5.09 | <.001 |
| Avoidance \times Condition | .04 | .06 | .04 | .65 | .52 | -.16 | .10 | -.09 | -1.56 | .12 |
| Anxiety \times Condition | -.01 | .05 | -.01 | -.19 | .85 | -.03 | .09 | -.02 | -.38 | .70 |
| Age | -.003 | .01 | -.03 | -.50 | .62 | .03 | .01 | .13 | 4.43 | .02 |
| Gender | .05 | .06 | .05 | .80 | .42 | .20 | .11 | .10 | 1.82 | .07 |
| | Text Messaging | | | | | Email | | | | |
| | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> |
| Avoidance | .07 | .06 | .06 | 1.12 | .26 | .27 | .06 | .23 | 4.15 | <.001 |
| Anxiety | .18 | .06 | .17 | 3.05 | .003 | .20 | .06 | .20 | 3.53 | <.001 |
| Condition | .56 | .07 | .41 | 8.48 | <.001 | .35 | .07 | .26 | 5.25 | <.001 |
| Avoidance \times Condition | -.03 | .06 | -.02 | -.39 | .70 | .01 | .06 | .004 | .08 | .94 |
| Anxiety \times Condition | -.07 | .06 | -.07 | -1.25 | .21 | -.05 | .06 | -.05 | -.93 | .35 |
| Age | -.03 | .01 | -.20 | -4.03 | <.001 | .004 | .01 | .03 | .65 | .52 |
| Gender | -.21 | .07 | -.15 | -3.04 | .003 | -.18 | .07 | -.14 | -2.68 | .008 |

Note. Gender codes: -1 = Men, 1 = Women. Condition: -1 = Negative, 1 = Positive.

using face-to-face communication and a preference toward using email when communicating with partners. Anxious participants preferred using text messaging and emails when communicating with partners. Condition did not moderate any of the associations between attachment and preferences, suggesting anxious and avoidant adults prefer these mediums when communicating both positive and negative information.

3.4.3. Perceived resolution (with partner)

As shown in Table 5, avoidant individuals reported that they felt conflicts were less likely to be resolved when communicating face-to-face with their partners. Avoidant individuals also felt that conflicts were more likely to be resolved through email. No other attachment-related differences emerged.

3.5. Does perceived intimacy of a medium explain attachment-related preferences for that medium?

As described above, attachment avoidance was associated with perceiving face-to-face interactions as less intimate and with

preferring not to use face-to-face interactions during conflicts with partners. However, avoidant individuals also reported that they felt conflicts were not resolved during face-to-face interactions. Thus, we examined whether avoidant individuals' dislike of face-to-face interactions could be explained (i.e., mediated) by (a) their perception that face-to-face interactions are not intimate and (b) their feelings that conflicts are unlikely to be resolved using this medium.

To conduct these analyses, we used the bootstrapping procedure recommended by Preacher and Hayes (2008) for estimating direct and indirect effects with multiple mediators. This approach has several advantages over traditional mediational procedures. Specifically, more than one mediator can be tested at a time (thereby assessing the joint contributions of multiple mediators); bootstrapping tests do not rely on the assumption that the total and indirect effects are normally distributed (as is the case in the traditional Sobel test of mediation); and bootstrapping reduces the likelihood of Type 1 error by minimizing the number of inferential tests that are performed. Bootstrapping analyses were conducted using the SPSS macro created by Preacher and Hayes. This analysis

Table 5
Regressions Predicting Perceived Resolution (with partner) from Avoidance and Anxiety.

| | Face-to-Face | | | | | Phone | | | | |
|-----------|----------------|-----------|---------|----------|----------|----------|-----------|---------|----------|----------|
| | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> |
| Avoidance | -.18 | .08 | -.20 | -2.28 | .02 | .05 | .11 | .04 | .50 | .62 |
| Anxiety | -.12 | .07 | -.15 | -1.60 | .11 | .02 | .10 | .02 | .23 | .82 |
| Age | .004 | .01 | .04 | .47 | .64 | -.03 | .01 | -.23 | -2.72 | .007 |
| Gender | .12 | .09 | .12 | 1.42 | .16 | -.25 | .12 | -.18 | -2.21 | .03 |
| | Text Messaging | | | | | Email | | | | |
| | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> | <i>b</i> | <i>SE</i> | β | <i>t</i> | <i>p</i> |
| Avoidance | .11 | .10 | .09 | 1.09 | .28 | .18 | .10 | .16 | 1.86 | .07 |
| Anxiety | .13 | .09 | .12 | 1.44 | .15 | .11 | .09 | .12 | 1.29 | .20 |
| Age | -.04 | .01 | -.33 | -4.23 | <.001 | -.02 | .01 | -.13 | -1.59 | .11 |
| Gender | -.35 | .11 | -.25 | -3.28 | .001 | -.30 | .10 | -.23 | -2.92 | .004 |

Note. Gender codes: -1 = Men, 1 = Women.

provides point estimates and bias-corrected and accelerated confidence (BCA) intervals for the indirect effect of a mediator. Confidence intervals that do not contain zero indicate significant mediation.

For the bootstrapping analyses, preference for a particular medium (e.g., face-to-face) was entered as the dependent variable, attachment avoidance was entered as the predictor variable, and perceived intimacy of that medium and the conflict resolution potential (i.e., perceived resolution) of that medium were entered as potential mediators. All analyses were conducted with attachment anxiety, age, and gender as covariates.

As depicted in Fig. 6, the total effect of avoidance on preference for face-to-face communication (i.e., the effect of avoidance without consideration of the mediators) was negative and statistically significant. However, the direct effect of avoidance (controlling for the mediators) was not statistically significant, and the overall indirect effect of avoidance on preference for face-to-face communication (via perceived intimacy and conflict resolution potential as mediators) was significant, with a point estimate of $-.16$ and a 95% BCA confidence interval of $-.32$ to $-.02$. Thus, perceived intimacy and conflict resolution mediated the association between attachment avoidance and preference for face-to-face communication. Specifically, avoidant individuals felt that face-to-face interactions were less intimate and were unlikely to help resolve conflicts, which in turn were associated with decreased preference for face-to-face interactions.

Additionally, avoidant individuals reported a preference for email messages and also felt that they were more intimate and tended to resolve conflicts with their partners. Thus, we examined whether avoidant individuals' preference for email interactions could be explained (i.e., mediated) by (a) their perception that email messages were more intimate and (b) their feelings that conflicts are more likely to be resolved using this medium.

As in the previous mediation, preference for email messages was entered as the dependent variable, attachment avoidance was entered as the predictor variable, and perceived intimacy of email messaging and the conflict resolution potential of that medium were entered as potential mediators. All analyses were conducted with attachment anxiety, age, and gender as covariates. The results revealed that the association between avoidance and preference for email communication was not significantly mediated by perceived intimacy of email or the conflict resolution potential of email (BCA

CI: $-.03, .24$).¹

4. Discussion

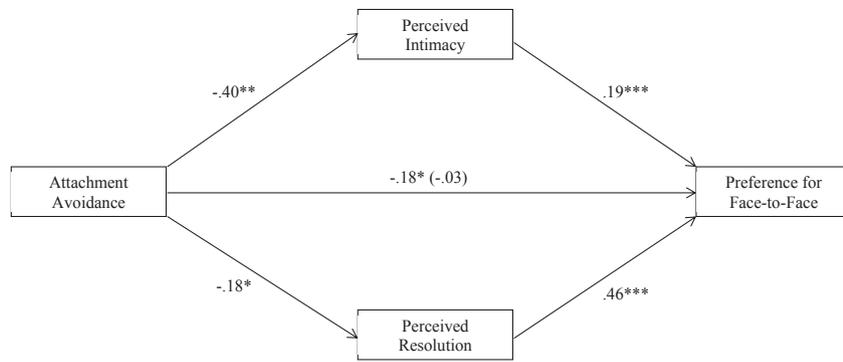
The current study drew on attachment theory to examine how people choose to communicate with their romantic partners. We collected online survey data from partnered individuals regarding their attachment orientation, perceived intimacy of different media (face-to-face, phone call, text message, email), and preferred use of these media for communicating with a romantic partner. Our primary goal was to assess how intimate (e.g., "close" or "distant") people find each form of communication as a function of their attachment orientation and how perceptions of intimacy map onto use and preference for these technologies. Our study provides novel information about how attachment orientation might influence the types of communication that occur between romantic partners.

Overall, and consistent with previous research (Lenhart, Ling, Campbell, & Purcell, 2010), we found that text message and phone calls were the most commonly used methods of communication. Participants considered face-to-face interactions the most intimate, followed by phone conversations, text messages, and email messages. Across both positive and negative conditions, participants used and preferred face-to-face interactions the most, followed by phone calls, text messages, and email messages, and considered arguments most often resolved when engaged in face-to-face interactions. Next we discuss attachment-related differences in technology use.

4.1. Use of medium as a function of attachment orientation

Avoidant individuals were less likely to use phone calls and text messages when communicating with romantic partners. These findings are consistent with previous research suggesting that avoidant individuals are less likely to engage with methods of communication that allow for greater closeness and immediacy (Drouin & Landgraff, 2012; Emery et al., 2014; Jin & Peña, 2010; Morey et al., 2013; Oldmeadow, Quinn, & Kowert, 2013; Trub, Revenson, & Salbod, 2014; Weisskirch, 2012). The fact that more avoidant individuals are less likely to use phone calls and text message is interesting considering we found these two methods of communication to be most commonly used in general. Because of the immediacy of these methods – the ability to be reached at any time and the pressure to respond more quickly – avoidant individuals might be less likely to use phone calls and text messages, perhaps reflecting their desire to maintain emotional distance and independence from others (Chopik et al., 2014; Edelstein & Shaver, 2004).

¹ The associations between anxiety and the use of text and email messaging for conflicts could also be mediated by perceived intimacy of these mediums as the intercorrelations between these variables were significant. However, none of the mediation models were statistically significant.



Note. Unstandardized regression coefficients representing the relationship between attachment avoidance, perceived intimacy, perceived resolution, and preference for face-to-face communication. The effect of attachment avoidance on preferences for face-to-face communication, controlling for perceived intimacy and perceived resolution, is in parentheses. Age, gender, and attachment anxiety were entered as covariates. * $p < .05$; ** $p < .01$; *** $p < .001$.

Fig. 6. The mediating role of perceived intimacy and perceived resolution on the association between avoidance and preferences for face-to-face communication during negative interactions.

As predicted, attachment anxiety was generally unrelated to use of communication methods. Anxious individuals' fear over losing their partner may push them to use multiple types of communication to contact their partner; however, their fears of rejection could also push them away from contact with their partner (e.g. Chopik et al., 2014). This ambivalence toward communication with their partner could explain the null association between attachment anxiety and frequency of using different types of technology.

4.2. Perceived intimacy of medium as a function of attachment orientation

Avoidant individuals perceived face-to-face interactions to be a less intimate form of communication as compared to text messaging and email (i.e., the latter media were seen as more intimate by this group). Perhaps avoidant individuals feel that face-to-face communication is less intimate because they are uncomfortable with the limited amount of time to react or respond when communicating with their partner—resulting in an interaction that feels less comfortable (Perry & Werner-Wilson, 2011). Avoidant individuals might experience less discomfort with the more detached email or text message, which enables them to evaluate and revise their message prior to their partner's receipt. Thus, text messaging might seem like a closer and more intimate form of communication for avoidant individuals.

Similar to avoidant attachment, anxious attachment was positively related to perceptions of intimacy for text messaging and email; face-to-face and phone call interactions were unrelated to perceptions of intimacy. Anxious individuals tend to worry about losing their partner (Campbell & Marshall, 2011), so the ability to make contact with a partner who is not in close proximity might give anxious individuals a feeling of comfort. Thus, the use of text message and email could be useful in ensuring the availability of their partner by communicating more with them. Anxious individuals may also feel that their desire for intimacy is reciprocated through text messaging and email because they are not able to read their partner's cues that might suggest otherwise (e.g., lack of eye contact, ambiguous behavior; Collins, 1996).

4.3. Context-dependent medium use and preference as a function of attachment orientation

Next, we examined which medium participants used and preferred when communicating positive information (positive condition: saying, "I love you" to a partner) versus negative information (negative condition: arguing with a partner). For the most part, attachment-related differences in use and preferences applied when communicating both positive and negative information.

The fact that avoidant individuals used (and preferred) a distant channel while arguing with a partner may not be particularly surprising. However, even when avoidant individuals have something pleasant to tell their partner, they still deliver this information through what most people perceive to be a more "distant" form of communication. Telling a partner "I love you" might be difficult for avoidant individuals because these words signal greater closeness and commitment (Dillow, Goodboy, & Bolkan, 2014). However, we found that avoidant individuals perceive email as *more* intimate. Therefore, avoidant individuals might also try to deliver a thoughtful message through their most (perceived) intimate channel.

Anxious individuals reported that they used (and preferred) email and text messaging more when communicating with their partners. Attachment anxiety is associated with more ambivalent motivations for technology use (Drouin & Landgraff, 2012; Jin & Peña, 2010; Luo, 2014; Morey et al., 2013; Weisskirch, 2012). Perhaps anxious people prefer to use texts and email with their partner to check in on their partner when they are not physically present but without the more immediate fear of rejection associated with phone calls and face-to-face communication.

4.4. Why do avoidant individuals prefer some media over others?

Together, our findings suggest that avoidant individuals report face-to-face interactions as less intimate, less preferred, and less likely to resolve a conflict. They report the exact *opposite* feelings about email. Why do avoidant individuals dislike face-to-face communication and instead prefer email interactions? We found that avoidant individuals felt that face-to-face interactions were less intimate and were unlikely to help resolve conflicts, which in turn explained their dislike for face-to-face interactions during

conflict.

Perhaps when avoidant individuals are confronted with a face-to-face conflict, they find themselves unable to manage the stress of the conflict. Their reaction could then be to withdraw and avoid expressions and emotions related to the argument (Overall, Simpson, & Struthers, 2013). Ignoring or shying away from face-to-face conflict could be construed by a partner as avoidant people giving up on the argument, making the outcome of the argument unproductive and unresolved. Perhaps when avoidant individuals can discuss a conflict in a less direct or immediate way (e.g., through email), they are able to think through their emotions and feel less defensive than during a more “immediate” face-to-face argument (Perry & Werner-Wilson, 2011). It therefore seems reasonable to think that avoidant individuals would perceive a conflict as more resolved when it is discussed at a distance. Thus, our findings suggest that, despite being ostensibly distant, avoidant people might use strategies that serve to maintain their relationship.

4.5. Limitations and conclusions

It is important to consider our findings in light of the limitations of our study. First, our study is correlational, which prevents us from making causal inferences as to whether attachment orientation causes people's feelings and behaviors about technology use in romantic relationships. We have argued that avoidant individuals are less likely to prefer face-to-face interactions. However, differences in communication styles could (partially) be an antecedent to attachment avoidance. Lack of face-to-face interactions with close others could foster more avoidant behaviors and reify avoidant tendencies. Perhaps interacting face-to-face is an effective strategy for resolving conflicts but avoidant individuals are simply less likely to engage in this type of communication. Future studies could assign avoidant individuals and their partners to use face-to-face interactions when communicating information to their partner and examine their feelings and effectiveness in situ.

Moreover, we asked only one person in the romantic relationship to respond to our survey. Future research should include both couple members to examine the dyadic effects of communicating through different mediums. Simpson and Rholes (2012) suggest that, “Perceptions of the partner/situation can also be affected by how the partner behaves (i.e., what she or he says or does) in the situation,” which suggests the importance of not only looking at attachment-related consequences from an individual standpoint, but also looking at how attachment orientations in both members of the couple interact to predict technology use and preferences. For example, if two avoidant individuals are paired together, most of their communication may be done via email. Incorporating a dyadic approach increases understanding of the ways in which individuals' attachment patterns predict their own outcomes and their partners' outcomes (Kenny, Kashy, & Cook, 2006).

Future research on this topic should explore other emerging technologies, such as Facebook, Twitter, Snapchat, and Skype. Anxious individuals may be more likely than avoidant individuals to monitor their partner electronically, such as checking their partner's Facebook for indicators of cheating (Fox & Warber, 2014; Marshall, Bejanyan, Di Castro, & Lee, 2013). Because such modern public platforms are used to discuss relationship problems and conflict, examining these platforms could have major implications for the ways in which individuals with different attachment orientations utilize them.

Despite these limitations, the current study demonstrates that there are individual (and likely couple-level) differences in preferences for certain communication mediums. The use of technology has dramatically increased over the past decade (Chopik et al.,

2014) and has become a mainstream way for romantic couples to communicate (Schade et al., 2013). Difficulties in implementing and navigating these technologies can undermine romantic relationships and predict relationship dissolution (Lavner & Bradbury, 2012). Identifying methods of communication that facilitate positive conflict resolution in insecure individuals is the first step towards building stronger and happier relationships. The current findings begin to address the mechanisms that may underlie insecure individuals' communication motives in romantic relationships, which is an important contribution to attachment and relationship-related literature.

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