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Put Down that Phone and Talk to Me:

Understanding the Roles of Mobile Phone Norm Adherence
and Similarity in Relationships

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RUNNING HEAD: MOBILE PHONE NORMS

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Abstract

This study uses co-orientation theory to examine the impact of mobile phone use on relational quality across three co-present contexts. It investigates the relationship between perceived similarity, actual similarity, and understanding of mobile phone usage on relationship outcomes, and uses a new measure of *mobile relational interference* to assess how commitment, satisfaction, and liking are affected by perceptions of relational partners' mobile phone use. Contrary to popular belief, the results from this study of 69 dyads reveals that, at least within a sample of young Americans, failing to adhere to injunctive (i.e., societal) norms regarding mobile phone usage does not impact relational quality. Rather, results indicate that perceived adherence to participants' own internal standards —by both the participant, and the participant's relational partner— and perceived similarity between partners were more influential.

Keywords: commitment; co-orientation theory; etiquette; liking; mobile phone; satisfaction

Put Down that Phone and Talk to Me:

Understanding the Roles of Mobile Phone Norm Adherence and Similarity in Relationships

It is a common scenario: two people are dining together in a restaurant, each staring at the screen of a smart phone, neither looking at the other. Good for checking social network sites, posting and viewing photographs, surfing the web, and much more, smart phones enable people to easily engage in many potentially distracting activities. There is a moral panic that the increasingly pervasive use of smart phones is damaging relationships. *The Wall Street Journal* warned that mobile phone use is creating a perilous decline in eye contact (Shellenbarger, 2013). Emily Post (“Top Ten Cell Phone Norms”, n.d.) warned that using mobiles when with a loved one can lead to the perception that devices matter more than partners. “Constantly checking for messages is an addiction which like other drugs can ruin your personal relationships,” argued the *Telegraph* (Alleyne, 2012). Despite these concerns, little work has examined whether mobile phone behavior in the presence of relational partners corresponds to relational quality. This paper explores that question. We focus on young adults, for whom mobile phones are key to friendship (e.g., Quan-Haase, 2007; Hall & Baym, 2011) and romantic relational management (e.g., Duran, Kelly, & Rotaru, 2011). In brief, we posit that if mobile use and relational quality are related, it may not be based on adherence to broad cultural norms, but on sharing – or believing you and your partner share – the same internalized norms.

Norms, Technology, and Mobile Phones

New technologies have always challenged social norms (e.g., Marvin, 1988). Social norms can be considered “rules that guide behavior” or “a framework through which people determine what behaviors are acceptable or unacceptable” (McLaughlin & Vitak, 2011, p. 300). Norms are not absolute standards and are continuously in flux. They differ amongst social

groups, genders, generations, relationships, and cultures (e.g., Axelsson, 2010; Johar, 2005; Montgomery Kane, & Vance, 2004; Ohbuchi et al., 2004), and may or may not be followed in any given moment depending on whether a norm is focal (Kallgren, Reno, & Cialdini, 2000). Despite their variability, to the extent they are consistent, they are crucial to public and relational order. As research on Expectancy Violations Theory (Burgoon, 1978) has shown, when people witness a norm violation, they tend to seek explanations for the transgression and judge the violator.

When technologies are new, norms change rapidly, making disparity in expectations increasingly likely (e.g., Ling, 2008; McLaughlin & Vitak, 2011). There are emergent norms around taking calls, texting in public, and how to behave while you or your conversational partner use mobile technologies (Arminen, 2005; Axelsson, 2010; Baron & Hård af Segerstad, 2010; Lipscomb, Totten, Cook, & Lesch, 2007). However, differences between cultures (Baron & Hård af Segerstad, 2010) and age cohorts (Axelsson, 2010; Lipscomb et al., 2007) show that some norms are contested. Ling and McEwen (2010) argued that mobile phone norms demonstrate “in tangible ways our sense of that which is ethical” (p. 12). Onlookers may judge norm violators negatively, feeling anything from irritation to moral outrage (Arminen, 2005; Humphreys, 2005; Ling, 2008).

While research shows that normative mobile phone violations committed by strangers irritate (Ling, 2008), we do not know how such transgressions are viewed when committed by a close friend or romantic partner, let alone what their relational consequences may be. We do know that some cultures judge normative transgressions differently depending on whether or not the violator is someone with whom they are close (Ohbuchi et al., 2004). Given the widespread public sense that transgressions harm relationships, this deserves attention.

Injunctive norms, adherence, and social order

Norms are both injunctive (e.g., Kallgren et al., 2000) and internalized (Ling & McEwen, 2010). *Injunctive norms* are shared by group members within a social context. Injunctive norms are strong predictors of communicative behavior, even accounting for individuals' attitudes (Hall & La France, 2012). Recent extensions of social identity theory (Terry & Hogg, 1996) suggest that attitudes are particularly predictive of behavior when individuals believe they are in social environments where peers support that behavior. Internalized norms are based on individuals' sense of etiquette, their social identities, and other factors that may differ from the injunctive norms of their broader cultures (Johar, 2005).

How might these two sets of norms affect close relationships? Ling and McEwen (2010) argue that mobile norms are moral standards; their violation may violate others' rights, be insensitive, or be potentially abusive. Partner transgressions could affect relational outcomes such as closeness, liking, and satisfaction in two ways. First, a partner may be directly offended by a transgression. Second, a partner's transgression can affect one's own public identity. As relationships become more intimate, each partner's face becomes bound up in the identity and behavior of the other. Inappropriate conduct by one threatens the *relationship-specific face* shared by both (Cupach & Metts, 1994) and can be as embarrassing as one's own conduct (Miller, 1992). This may result in decreased quality, satisfaction, and length of relationships (Petronio, Olson, & Dollar, 1989). Because violations of either injunctive or internalized norms may affect relationships, we offer these hypotheses:

H1a: Relationship partners' perceived adherence to injunctive norms will be positively associated with relationship quality, and negatively associated with the perception that mobile phones interfere with their relationship.

H1b: Relationship partners' perceived adherence to one's own internalized norms will be positively associated with relationship quality, and negatively associated with the perception that mobile phones interfere with their relationship.

People may also harm relationships by failing to meet their own normative standards. Self-adherence is the degree to which individuals live up to their own norms or the norms they perceive others to value. People who do not meet internalized or injunctive standards of mobile phone-related conduct may have allowed the mobile device to interfere with their relationships. Indeed, young people express ambivalence about neglecting a co-present partner to attend to their phones (Turkle, 2011). Although they acknowledge the behavior may harm their co-present friend, they still feel they must attend to incoming calls or texts. However, we do not know whether or not the degree of self-adherence actually corresponds to relational quality:

RQ1: Will individuals' own adherence to internalized and injunctive norms affect their relationship relationship quality, and the perception that mobile phones interfere with their relationship?

Mobile phone interference may serve as a mediating variable between use and/or norm adherence and relationship outcomes. If this is so, norm adherence does not directly influence individuals' satisfaction, commitment, or liking. Rather, people who do not adhere to norms allow the mobile device to interfere with the relationship and this is what is harmful (Turkle, 2011). The more people perceive mobile phones as interfering with relationships, what we call *mobile relational interference*, the less commitment, satisfaction, and liking there may be in that relationship:

RQ2: Will relationship partners' use of mobile phones and adherence to internalized and injunctive norms indirectly affect relationship outcomes through the perception that mobile

phones interfere with their relationship?

If it is true that mobile phone use when with a partner is unhealthy for relationships, we should expect that partners who use mobile phones in one another's presence would have lower quality relationships and perceive the device to interfere in their relationship. Therefore, we offer:

H2: Participants' use of mobile phones will be negatively associated with relationship quality, and positively associated with the perception that mobile phones interfere with their relationship.

Co-orientation theory

We approach the relationship between perceptions of one's own and relational partners' mobile phone use and relational quality (i.e., closeness, liking, satisfaction) from the perspective of co-orientation theory, which has not been applied to mobile phone use. Co-orientation theory (Newcomb, 1953) explores how perceived similarity in attitude and behavior between relational partners influences closeness. It has been applied to family communication (McLeod & Chaffee, 1973), sexual communication (Purine & Carey, 1999), and negative humor use in public and private (Hall & Sereno, 2010). It is well suited to explore the extent to which sharing norms may exacerbate or mitigate the relational consequences of behaviors (McLeod & Chaffee, 1973). Co-orientation theory has been limited to dyads, small groups, and families (McLeod & Chaffee, 1973; Newcomb, 1953). Exploring injunctive norms with co-orientation theory extends the theory to a broader referent group.

Newcomb (1953) suggested that the relationship between two people (A and B) depends, in part, on their orientation toward one another and their mutual orientation toward an object of communication (X). McLeod and Chaffee (1973) formalized three co-orientation variables.

Perceived similarity is “the similarity between the perception of the other person’s feelings and your own feelings” (McLeod & Chaffee, 1973, p. 473). *Actual similarity* compares each partners’ perception of X. The final variable, *understanding*, assesses “the extent to which one person’s estimate of the other person’s cognitions match what the other person really does think” (McLeod & Chaffee, 1973, p. 487).

Intuitively, actual similarity might seem to matter most to relational outcomes, however, perceived similarity and understanding are more predictive (McLeod & Chaffee, 1973). The perception of similarity is in itself rewarding (Montoya, Horton & Kirchner, 2008), even when behavior is offensive to others (Hall & Sereno, 2010). In the context of mobile norms, this could mean that when people view a partner’s behavior as in keeping with their internalized norms, it is rewarding, even when outsiders might deem that behavior inappropriate. The pair in the restaurant checking their phones may violate others’ norms, yet benefit from perceiving themselves as similar.

Understanding enables more accurate communication (McLeod & Chaffee, 1973), but accuracy can cause problems. For example, a more accurate understanding of partners’ offensive humor in public is negatively associated with satisfaction in romantic relationships (Hall & Sereno, 2010). Sometimes less accurate understandings of our partners helps us see them more positively. We offer these hypotheses:

H3: Perceived similarity between relationship partners in their use of mobile phones will be positively associated with relationship quality, and negatively associated with the perception that mobile phones interfere with their relationship.

H4: Understanding between relationship partners in their use of mobile will be negatively associated with relationship quality, and positively associated with the perception that mobile

phones interfere with their relationship.

RQ3: Will actual similarity between relationship partners' use of mobile phones be associated with relationship quality and perceptions of mobile phone relational interference?

Three mobile phone contexts

As the discussion of norms above suggests, they depend on context. Because we focus on relational consequences, we seek to disentangle actions likely to affect only the actor, and actions that affect relational partners. Most publicized cases of mobile phone transgressions concern one individual whose behavior affects strangers in public environments, such as planes, shops, or elevators. The consequences of these actions only become *relational* when partners are co-present (Cupach & Metts, 1994). In this paper, we identify three contexts in which mobile phones are used in the presence of a relational partner.

Private conversation. Across cultures, individuals tend to view taking a call on a mobile phone while in conversation with another person as a severe transgression (Baron & Hård af Segerstad, 2010). Someone co-present in a conversation has an “entrenched right of way when compared to talking on the phone” (Ling & McEwen, 2010, p. 19). The ring is a disturbance; even possessing a mobile phone is a constant reminder of impending distraction (Ling & McEwen, 2010; Turkle, 2011). When on a mobile device, a person can be physically present, yet psychologically distant (May & Hearn, 2005).

Dyadic public co-presence: In Humphreys' (2005) analysis of pairs' public mobile phone use, she elaborates on Goffman's concept of cross-talk, showing how it occurs when one person abandons the other to engage a third party through a mobile. One reason that engaging in a mobile phone conversation under these circumstances may be transgressive is that the co-present partner feels entitled to more attention than whoever is calling or texting (Humphreys, 2005;

Ling & McEwen, 2010). It can be particularly disruptive when the co-present partner must then attend to the call receiver's face needs by providing space and privacy in an area that was once the possession of the dyad, like a café table. Baron and Campbell (2012) found that public situations where another person is present were among the least acceptable places to talk and text across five cultures, and Americans were particularly averse to mobile phone conversations at restaurants.

Public co-presence. The final category is most potentially threatening to relationship-specific face and is commonly brought to attention by media reports and advice columns (Lipscomb et al., 2007). Normative violations in public co-present contexts include talking too loudly, especially about 'inappropriate' topics, using mobile phones during movies, at libraries or in class, or on public transportation (Axelsson, 2010; Baron & Campbell, 2012; Baron & Hård af Segerstad, 2010; Ling, 2008; Lipscomb et al., 2007). When in public with a relationship partner, these transgressions can lead to audiences condemning both for the actions of one (Cupach & Metts, 1994). We offer the final research question:

RQ4: In which co-present contexts do people think it is most important to follow norms?

Method

Pilot Study

We assembled a list of norms for mobile phone use through an extensive survey of sources including press coverage of etiquette, scholarship, social network conversations, and brainstorming sessions in two undergraduate communication classes. This list had 54 items we sorted into five categories. We conducted a pilot survey ($N = 88$) to assess the underlying factor structure. Participants were recruited from communication classes in a large public Midwestern American and completed a survey for extra credit. They were given the following prompt: "In

this situation, please indicate to what extent do you agree that people should usually follow each of these norms?” Participants indicated on a 5-point Likert-type scale the degree to which they agreed that people should follow each norm (1 = Strongly Disagree, 5 = Strongly Agree). Factor analyses¹ revealed that the first factor (*public*) centered on avoiding behavior that could bother others (e.g., “do not have highly personal conversations on the phone in the presence of the other person”) ($\alpha = .78$). The second factor (*private conversation*) concerned maintaining focus on one another while in one-on-one conversation ($\alpha = .83$). These norms included avoiding talking or texting on mobile phones when together, and keeping incoming calls brief. The third factor (*public dyadic co-present*) included norms about behavior when out together in public ($\alpha = .90$). These included avoiding using mobile phones in restaurants and bars (see Appendix A).

Main Study

Participants. Given that we were exploring variations between individual, partner, and injunctive norms, we deliberately sought a homogenous sample that would likely share injunctive norms. Participants were recruited from communication classes at the same university as the pilot study in exchange for credit in April 2013. Participants recruited “a close friend or romantic partner” to complete an online survey. The procedures were approved by the university’s IRB.

Sample

Sixty-nine pairs of participants ($N = 138$) were included in the final sample. Due to known generational differences in mobile phone norm perceptions (Axelsson, 2010; Baron & Campbell, 2012) and a desire for homogeneity, we excluded participants over 25 years of age. The average age was 20.2 ($SD = 1.83$, $Mdn = 20$ yrs, $mode = 19$ yrs, range 18 to 25). The sample was 54% female ($n = 75$), 40% of pairs were in a romantic relationship, and 60% were close friends. The

average length of participants' relationships was 3.1 years ($SD = 3.92$, $Mdn = 1.5$ yrs, $mode = 1$ yrs, range .5 - 22 years). The sample was 80% White, 11% African-American, 3% mixed race, 2% Asian-American, 2% Latino, and 2% reporting other.

Measures and procedure

The study was publicized to students enrolled in classes requiring research participation. Interested participants provided a friend or romantic partner's email address. Each pair was given a link to an online survey and a unique ID. No other identifying information was requested. Participants were asked to keep their relationship partner in mind as they completed items on the survey. Like Ohbuchi et al. (2004), we use the term "partner" to refer to both friendship and romantic partners. One version of the survey started with the mobile phone use and norm perception sections. The other began with the relationship quality section.

The survey had five sections. In the four norm perception sections, the items for the three factors identified in the pretest (i.e., public, private conversation, public dyadic) were repeated. The section measuring internalized norms provided these instructions: "The following statements are a list of norms about how mobile phones should or should not be used. You might agree with some of these norms and disagree with other norms. For the following norms, answer questions about [context]. In this situation, please indicate to what extent do you agree that people should usually follow each of these norms?" They indicated on a 5-point Likert-type scale the degree to which they agreed that people should follow norms (1 = Strongly Disagree, 5 = Strongly Agree). The section measuring frequency of following rules asked participants the degree to which "you follow these norms YOURSELF. You are reporting on your own behavior in the following situation." They responded on a 5-point scale (1 = "I never follow this rule, 5 = "I always follow this rule"). The section measuring partner adherence asked participants how frequently their

relationship partner followed the norms on the same 5-point scale. To measure injunctive norms, we gave these instructions: “For the following questions, think about your peers or people just like you. To what extent do you think that your peers agree with the following norms? Essentially, we are asking, to what degree do your peers think that each behavior is acceptable or not.” Participants responded on a 5-point Likert-type scale (Table 1).²

Dyadic measures, adherence, and injunctive norms

The three co-orientation variables (i.e., perceived similarity, actual similarity, understanding) were calculated using the Spearman’s Rho correlation method (Purine & Carey, 1999). We created three co-orientation measures for each context of mobile use. For perceived similarity, the participant’s own self-reported frequency of following mobile phone norms and participant’s assessment of his or her partner’s frequency of following those same mobile phone norms were correlated. For actual similarity, we correlated the participant’s own self-reported frequency of following mobile phone norms and the participant’s partner’s self-reported own frequency of following mobile phone norms. For understanding, the participant’s assessment of his or her partner’s frequency of following mobile phone norms and that partner’s actual frequency of following mobile phone norms were correlated. Except for actual similarity, the calculated correlation coefficients were different between partners.

Two types of norm adherence were calculated. Self-adherence was the degree to which participants followed their internalized mobile phone norms in each mobile context. Partner adherence was the perception that the partner followed the participant’s internalized mobile norms. Both scores were calculated by computing the difference between all items measuring the participant’s perception of the norms and the items measuring how often the norms were followed. This yielded a difference score where positive scores indicated that participants or their

partners exceeded participants' internalized normative standards. Negative scores indicated that participants or partners did not meet internalized normative standards. To measure adherence to the injunctive norm, the same procedure was followed except we calculated participants' adherence to the injunctive norm and participants' perception that their partner adhered to the injunctive norm.

Relationship quality. To measure relationship quality, we used three existing measures: commitment, satisfaction, and liking. Participants responded on a 5-point Likert-type scale.³ We created a new measure of *mobile relational interference*, assessing the extent to which people felt that mobile phones interfered with, distracted from, or decreased pleasure from time spent together and sense of enjoyment in the relationship. We devised 11 items reflecting the construct as conceived herein. We closely examined phrasing and word choice to ensure the items could be easily understood using a Likert-type agreement scale. We retained nine items after conducting EFA and reliability analyses ($\alpha = .93$) (Appendix A).⁴ We measured commitment with 10 of 14 items from Sternberg's (1990) scale ($\alpha = .96$) (e.g., "I view my relationship with this person as permanent"). We measured *relationship satisfaction* using Hendrick's (1986) five-item generalized satisfaction scale ($\alpha = .90$) (e.g., "Our relationship is close to ideal"). We measured *liking* with seven of 12 items from Rubin's (1970) scale ($\alpha = .91$) (e.g., "This person is one of the most likeable people I know").

Results

To answer hypotheses (H1a-H4) and research questions (RQ1-3) regarding relationship outcomes and mobile relationship interference, we ran a series of OLS regression analyses. In the first model for each of the four dependent variables, OLS regression analyses were run only with control variables: sex (Female = 1), age, race/ethnicity (white = 1, non-white = 0), relationship

length and type (1 = friendship, 0 = romantic relationship), and whether participants completed the survey with norms or relationship measures first (Table 2). We then entered the predictors of outcomes by each mobile co-present context individually using backward regression to identify predictors within each context.

Predictors of liking. In the public context, both self-adherence to internalized norms (RQ1) and partner's adherence to internalized norms (H1b) were associated with more liking. None of the public dyadic context variables predicted liking. In the private conversation context, perceived similarity was positively associated with liking (H2).

Predictors of commitment. In the public context, self-adherence to internalized norms was positively associated with commitment (RQ1). None of the public dyadic context variables predicted commitment. In the private conversation context, perceived similarity was positively associated with commitment (H3).

Predictors of satisfaction. In the public context, self-adherence to internalized norms was positively associated with relationship satisfaction (RQ1). None of the public dyadic variables predicted relationship satisfaction. None of the private conversation context variables predicted relationship satisfaction.

Predictors of interference. In the public context, partner adherence to internalized norms was associated with less relationship interference by mobile phones (H1b). In the public dyadic context, perceived similarity (H3) and partner adherence to internalized norms were associated with less relationship interference by mobile phones (H1b). In the private conversation context, perceived similarity (H3) was associated with less relationship interference by mobile phones.

Dyadic and indirect effects

We analyzed dyadic and indirect effects of mobile phone use on relational outcomes via

mobile phone interference (RQ2). Several data limitations shaped our strategy. Data collected from relational partners violates the assumption of non-independence of samples (Kenny, Kashy, & Cook, 2006). Dyads in this sample were also indistinguishable – pairs could not be separated by relationship type, sex, or relationship role (e.g., parent-child). Furthermore, as Table 2 demonstrates, these potentially distinguishing characteristics were predictive of study outcomes; they were meaningful control variables. Finally, sample size prohibited moderation analyses by type of relationship or sex and/or both. Given these parameters, we used MPLUS 6.0 (Muthen & Muthen, 2007) to explore inter-class correlations (ICC), to determine whether constraining or freeing paths changed model fit, and to analyze whether indirect effects were significant accounting for control variables.⁵

Exploring the indirect relationships between adherence and relationship outcomes through mobile relational interference revealed one significant indirect model. This model suggested two significant direct paths from partner adherence to internalized norms to mobile relationship interference, $B = -.03$, $SE = .01$, $p = .008$, and from interference to relationship satisfaction, $B = -.17$, $SE = .08$, $p = .039$. While the direct path between partner adherence and satisfaction was not significant, $B = .03$, $SE = .10$, $p = .75$, bootstrapping revealed that the indirect path was significant, $B = .06$, $SE = .03$, $p = .044$. Simultaneously, self-adherence to internalized norms directly predicted relationship satisfaction, $B = .02$, $SE = .01$, $p = .037$. Taken together, the results suggest that (a) partners' adherence to internalized norms leads to less mobile phone interference, which, in turn, increases relationship satisfaction; (b) and participants' self-adherence to internalized norms directly increases satisfaction, not through a reduction of interference.

In the *public dyadic* context, the ICCs between dyad partners' perceived similarity and

dyad partners' adherence to internalized norms were not significant, permitting interpretation of regression results. Indirect effects between mobile use variables and relationship outcomes through mobile relationship interference were not significant.

In the *private conversation* context,⁶ perceived similarity in mobile use was negatively associated with mobile phone interference, $B = -.94$, $SE = .24$, $p < .001$, and mobile interference was negatively associated with commitment, $B = -.19$, $SE = .08$, $p = .017$. While the direct path between perceived similarity and commitment was not significant, $B = .06$, $SE = .08$, $p = .74$, bootstrapping revealed that the indirect path was significant, $B = .06$, $SE = .03$, $p = .032$. This suggests that perceived similarity in mobile phone use in private indirectly increases commitment in close relationships through mitigating the interference of mobile phones.

Mean difference tests

RQ4 asked in which contexts participants think it is most important to behave normatively. We explored differences between mean values presented in Table 1 to determine whether the gap between internalized and injunctive norms differed across contexts, and whether participants reported that they or their partners followed norms more closely. First, we explored the differences within each context separately using paired-samples *t* tests. In the *public* context, participants' internalized norms and their perception of injunctive norms were not significantly different. However, participants reported following the norms significantly more than they perceived their partners to follow norms, $t(137) = 1.69$, $p = .048$. In the *public dyadic* context, participants' internalized norms were significantly higher than their perception of the injunctive norms, $t(137) = 2.52$, $p = .013$. Participants' perceptions of how often they and their partners followed the norms were not significantly different. In the *private conversation* context, there was no difference between participants' internalized norms and their perception of injunctive

norms, nor was there a difference between participants' perception of how often they and their partners followed the norms.

The second set of paired-samples t tests explored participants' perceptions between the three contexts. All four *public* context items (i.e., internalized norms, injunctive norms, frequency of following norms, and perception of partners' frequency of following norms) were significantly higher than the same sets of items for the *public dyadic* and *private conversation* contexts, in all cases $p < .001$. Participants had higher standards of conduct and perceived that both they and their partners followed the norms most in the *public* context. None of the four sets of items significantly differed between the *private conversation* and *dyadic public* contexts.

We also used paired samples t tests to compare adherence to norms. In the public context, participants reported adhering to their own internalized norms at a higher rate than their partner, $t(137) = 1.73, p < .041$. Participants also reported adhering to injunctive norms more than their partners, $t(137) = 4.23, p < .001$. There were no differences in self or partner reported adherence to internal or injunctive norms in the *public dyadic* or *private conversation* contexts.

Post-Hoc Relationship Type and Sex Difference Tests

Although not a central question in the present study, differences by relationship type and sex in the perception of norms, the similarity between partners, and adherence to norms were explored. Three MANCOVAs were conducted to explore mean differences by sex and relationship type in the three contexts. To account for possible confounds, demographic variables (i.e., race, age), relationship length, and survey design type were treated as covariates. Results indicated that there were no differences by sex or relationship type for the public dyadic context.

In the public context, individuals in romantic relationships were more likely to self adhere to peer norms than were individuals in friendships, $F = 4.11, p = .031, \text{partial } \eta^2 = .031$.

An interaction effect between sex and relationship type, $F = 4.02$, $p = .047$, partial $\eta^2 = .031$, demonstrated that females were equally likely to adhere to peer norms with friends or romantic partners, but males were more likely to adhere to peer norms with romantic partners than with friends.

In the private conversation context, MANCOVAs revealed four mean differences. Males' perception of the importance of norms were higher than females perceptions of the importance of norms, $F = 6.14$, $p = .015$, partial $\eta^2 = .046$. There was a significant interaction effect for the degree to which participants follow the norms, $F = 5.41$, $p = .022$, partial $\eta^2 = .041$, wherein males were equally likely to follow the norms with friends and romantic partners, but females were more likely to following the norms in private conversations with romantic partners than friends. Individuals in romantic relationships were more likely to perceive partners adhering to peer norms in private conversation than were individuals in friendships, $F = 4.45$, $p = .037$, partial $\eta^2 = .034$. Finally, females were more likely than males to self adhere to internalized norms of private conversation, $F = 5.08$, $p = .026$, partial $\eta^2 = .038$. It is important to note that although there were 33 variables tested for sex and relationship type differences, significant differences only occurred sex times and with small effect sizes.

Discussion

This paper began with the oft-cited concern that violations of mobile phone etiquette damage personal relationships. This assumes that frequency of following societal (i.e., injunctive) norms corresponds to relational quality. We found that across three contexts with varying levels of social visibility, perceptions of how often people in close relationships follow what they believe to be the injunctive norms did not correlate with relational outcomes. To the extent that normative behavior plays a role in relational quality, this study suggests it is through

adherence to internalized, rather than injunctive, norms. However, this plays out differently depending on context.

In public contexts, our participants thought it most important to behave normatively. Although each partner in the relationship thought that he or she behaved better than the other in public, adherence to injunctive norms in public did not affect relational quality. However, the more people saw themselves and their partners adhering to their *own* internalized norms, the more they liked their partners. The more they themselves adhered to internalized norms, the more commitment and satisfaction they felt in the relationship. The more their partners followed internalized norms in public, the less they felt mobiles interfered with their relationship. Mediation analyses further illustrate that a norm-following partner mitigates the interference of a mobile device in the relationship, thus increasing relationship satisfaction. When a relational partner acts in accord with one's own internalized standards, this adherence protects both partners' face (Cupach & Metts, 1994). When participants themselves followed their internalized norms, they were more satisfied and committed to the relationship and liked their partners more. Because this is cross sectional data, it is equally possible that individuals who are committed and satisfied follow their own mobile phone norms more conscientiously as evidence of their commitment and satisfaction.

In public dyadic contexts, like the restaurant scenario, perceptions that the self or the partner followed either injunctive or internalized norms did not predict relational quality. However, participants who thought their partner had similar norms to themselves (i.e., perceived similarity) and participants who thought their partner adhered to their own internalized norms were less likely to experience mobile relationship interference. The private context – in which people are accountable only to one another - was where norm adherence best predicted relational

outcomes. In private contexts, believing that you and your partner shared norms predicted more liking and commitment and was related to a lower sense of mobile relationship interference.

One purpose of this paper was to extend co-orientation theory into mobile phone research and, in so doing, to apply it to a broader group than dyads and immediate networks through the concept of injunctive norms. Not surprisingly, given previous work (e.g., McLeod & Chaffee, 1973), perceived similarity had the most power to predict relational quality. However, that this occurred only in the private context suggests that future researchers might want to consider this context in work using co-orientation theory.

Our study has several limitations and suggests several avenues for future research. We cannot claim with certainty whether following norms affects relationship quality. It is possible that partners in more high quality relationships adhere more strongly to internalized norms as a sign of respect. Future work could determine experimentally if increasing efforts to adhere to internalized standards results in greater relationship quality. By collapsing rather than comparing genders and different kinds of close relationships, we may have missed differences that play roles in the correlations among norms and relational quality. Mean differences by gender and relationship type show few differences with small effect sizes. However, there is no reason to think that the overall thrust of our findings – that in general, adherence to injunctive norms does not directly affect relational quality – would change. Our sample was also limited by design in our choice to seek people likely to share mobile phone norms. It is possible that our findings apply only to young people at Midwestern US universities. Future research should certainly consider the generalizability of the patterns we identified here and further explore how social groups' norms and patterns of mobile phone use vary. For instance, generational differences may account for inter-generational tensions in mobile etiquette. If older generational

cohorts are similarly adherent to internalized standards of conduct in relationships, but those standards differ across generations in an absolute sense (e.g., Axelsson, 2010), inter-generational tensions could result. We urge more comparative work across social groups. However, the fact that even in a relatively homogeneous population, relational quality was not simply correlated with normative behavior, but instead dependent on context and perceptions of similarity and adherence, means that we cannot take the direct link between behavior and relational outcomes for granted in any population without further study.

Conclusions

The rapid adoption and integration of mobile phone technology makes it difficult to establish appropriate norms of conduct; the rules of etiquette are emergent (Ling & McEwen, 2010). What constitutes appropriate mobile phone usage is contested, and public irritation is evidence that not everyone shares the same norms (Ling, 2008). The present study offers methods and measures to study continuing shifts in these standards of conduct. It also shows that there are not simple answers to questions of how mobile use, mobile norms, and adherence to those norms affect relationships. What mobile phone behavior means in any given relationship depends on many factors. We cannot say conclusively that agreement on mobile norms ensures long-term relational satisfaction, nor that disagreement spells relational demise. For many partners, annoying mobile behavior may be outweighed by ideal behavior in other areas, or ideal mobile behavior may be overlooked given other annoying qualities. It is possible that relationships could be damaged in less direct ways should a pair be judged negatively by others for having what is seen as bad mobile etiquette. There may be social consequences outside of the relationship for not following rules even if one does not agree to those rules or share those norms.

However, this paper's results suggest that it's far too simplistic to assume, as media and conversational rhetorics of mobile phone usage often do, that because others' behavior is different from what you find appropriate, their relationship is impoverished. As mobile technologies transformations continue, norms of appropriate relational behavior will be negotiated and renegotiated within different social cohorts and individual pairs of partners for the foreseeable future. The path to a deeper understanding of how mobile use colors relational quality starts by rejecting the common presumption that there is only one behavioral standard and that violations of that standard affect everyone the same way. If we are going to unravel the threads connecting mobile use to relational quality, we will need to understand mobile norms of behavior as ever-shifting and dynamically constructed in specific contexts of social identities and contexts. We will also need to attend to the material dimensions of the technologies themselves. The social meanings of holding a rectangle, for instance, may end up quite different from those of objects we wear.

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1. We conducted an exploratory factor analysis (EFA) using principle axis factoring and promax rotation, as recommended when factors are likely correlated (Fabrigar, Wegener, MacCallum, & Strahan, 1999), as we expected internalized norms to be. The first four factors had eigenvalues over 2.0, explaining 48% of the variance. Scree plot analysis of factors with larger eigenvalue cutoffs are preferred when conducting exploratory analyses and engaging in item reduction (Fabrigar et al., 1999). The ‘elbow’ of the scree plot leveled out past four factors. We identified the most interpretable factor structure according to the pattern matrix (Costello & Osborne, 2005). The items for each factor were retained when loadings were over .60 on their primary factor and less than .40 on other factors. The first three factors fit the context typology described above. A fourth factor, focused on the use of mobile devices while watching TV, was dropped. The three remaining factors were submitted to confirmatory factor analysis (CFA) in Mplus 6.0 (Muthen & Muthen, 2007) to ensure items significantly loaded on their respective latent constructs and cross-loadings were not significant. Model fit for the three factor model was adequate ($\chi^2 = 329.59$, $df = 183$, $\chi^2/df = 1.80$, RMSEA = .069, CFI = .86).

2. We conducted four CFAs in Mplus 6.0 on the three factor models for each set of responses: perception of norms, participants’ own adherence to norms, participants’ perceptions of their partner’s adherence, and participants’ perception of injunctive norms. In the CFAs, all items identified in the pretest significantly loaded on each respective latent construct and cross-loadings were not significant. The model fit for each of the four response sets was quite consistent, ranging from adequate to good fit, with participants’ own adherence to norms showing the best fit: perception of norms: $\chi^2 = 350.28$, $df = 201$, $\chi^2/df = 1.74$, RMSEA = .060, CFI = .93; participants’ perception of partner: $\chi^2 = 404.25$, $df = 201$, $\chi^2/df = 2.01$, RMSEA = .0739, CFI = .92; participants’ adherence: $\chi^2 = 350.32$, $df = 201$, $\chi^2/df = 1.74$,

RMSEA = .060, CFI = .95; injunctive norm: $\chi^2 = 371.04$, $df = 201$, $\chi^2/df = 1.85$, RMSEA = .066, CFI = .95. The χ^2 to degree of freedom ratio was well below the cut off of < 5.0 for a good fitting model, all below 2.02 (Byrne, 2012). The significant factor loadings, the consistency of fit across item set, and the lack of cross loadings suggest that our construct measures provided a valid basis for further analyses.

3. We performed CFAs on these scales for several reasons. Previous evidence of scale validity or reliability does not guarantee those conditions in future investigations (Byrne, 2012; Levine, Hullet, Turner, Lapinski, 2006). Self-report measures are fallible and may not show consistent factor structure between studies. Levine et al. (2006) recommend testing factor structure and modifying accordingly – typically pruning items. This results in greater measurement reliability and less measurement error. To be conservative in item analyses, we report the CFA model fit of both newly created and established measures. To identify factors measuring relationship outcomes, we conducted an EFA using principle axis factoring and promax rotation, as the constructs were likely to be correlated. Results indicated that three factors had eigenvalues over 2.0 and explained 53% of the variance. The highest loading items for each factor with low cross-loadings ($< .40$) were identified, and reliability analyses identified items with the highest internal consistencies.

4. We then performed CFA in Mplus 6.0 to ensure that the retained items for all constructs loaded on their respective latent factor and that cross loadings were not significant. The overall model fit for the four latent variables was adequate: $\chi^2 = 748.49$, $df = 393$, $\chi^2/df = 1.91$, RMSEA = .072, CFI = .93. Separate CFAs on each of the four latent constructs did not indicate that any particular latent variable was substantially contributing to model misfit once the number of items was taken into account. This suggested that the item pruning procedures (Levine et al., 2006) led

to an acceptable factor structure and variable measures for study outcomes. The original items from all four DVs were also tested in comparison to the final factor structure. Accounting for change in model fit likely due to number of items, the change in model fit was notable, RMSEA $\Delta = .039$ and CFI $\Delta = .037$.

5. In the *public* context, the ICCs were below the recommended cut-off of .30 between dyad partners' self-adherence to internalized norms (ICC = .084) and between dyad partners' partner-adherence to internalized norms (ICC = .068), suggesting that OLS regression results can be meaningfully interpreted despite sample non-independence. We tested the indirect effects of mobile use and perceptions on relationship outcomes using bootstrapping (Preacher & Hayes, 2008). We used structural equation modeling (SEM) to constrain dyad paths to be equivalent (Kenny et al., 2006) and to account for control variables. Constraining the paths to be equivalent led to a non-significant change in chi-square, $\chi^2 = 1.14$, $df = 1$, which suggests that accounting for separate paths for dyad members was unnecessary.

6. The ICC between dyads' perceived similarity were less than the recommended cut-off of .30 (ICC = .24), permitting interpretation of regression results. Constraining paths to be equivalent between partners and accounting for control variables revealed one significant indirect model. Constraining the paths to be equivalent led to a non-significant change in chi-square, $\chi^2 = .46$, $df = 1$.

Table 1
Means, Standard Deviations, and Reliabilities ($N = 138$)

	Public Context			Public Dyadic Context			Private Conversation Context		
	M	SD	α	M	SD	α	M	SD	α
Internalized rules	3.84	.65	.84	3.20	.80	.85	2.91	.89	.87
I follow rules	3.88	.78	.89	3.05	.98	.89	3.02	.90	.89
Partner follows rules	3.77	.85	.91	3.01	1.01	.88	2.90	.91	.87
Injunctive rules	3.73	.81	.92	3.02	.84	.84	2.97	.93	.92
Self-adherence internalized rules	.33	5.05		-.92	4.54		.72	5.82	
Partner adherence internalized rules	-.62	6.48		-1.38	6.00		-.08	7.76	
Self-adherence injunctive rules	2.87	8.12		.25	6.04		.35	6.67	
Partner adherence injunctive rules	.45	8.28		-.90	6.22		-.45	6.79	
	M	SD	α						
Mobile Relational Interference	2.51	.83	.93						
Commitment	4.13	.78	.96						
Liking	4.12	.68	.91						
Satisfaction	3.84	.72	.90						

Note: Rules and relationship outcomes measured 5-point scale; adherence measures are difference scores

Table 2
 OLS Regressions Predicting Interference, Liking, Commitment, and Satisfaction (N = 138)

	Mobile Interference				Liking				Commitment				Satisfaction			
	B	SE	β	<i>t</i>	B	SE	β	<i>t</i>	B	SE	β	<i>t</i>	B	SE	β	<i>t</i>
Participant																
Age	.04	.04	.09	1.09	.01	.03	.04	.44	.01	.03	.04	.44	-.06	.03	.14	-1.88
Sex (F = 1, M = 0)	-.04	.14	-.02	-.28	.46	.11	.34	4.40***	-.05	.03	-.12	1.54	.46	.11	.32	4.26***
Race/ethnicity (White = 1)	-.43	.18	-.21	-2.43*	.03	.14	.02	.20	-.06	.15	-.03	-.39	-.02	.14	-.02	-.17
Relationship																
Friend = 1, Partner = 0	-.16	.15	-.10	-1.11	-.44	.11	-.32	3.89***	-.53	.12	-.33	4.23***	-.53	.11	-.36	4.66***
Relationship length	-.03	.02	-.16	-1.81	.02	.01	.10	1.17	.06	.02	.30	3.80***	.04	.01	.20	2.51*
Survey form	-.11	.14	-.07	-.80	.23	.11	.17	2.11*	.24	.12	.15	1.99**	.32	.11	.21	2.85**
R ²				.11				.24				.30				.30
Public Context																
Self adherence, internalized rule					.02	.01	.17	2.22*	.30	.01	.18	2.48**	.03	.01	.19	2.61**
Partner's adherence, internalized rules	-.02	.01	.14	1.92*	.03	.01	.24	3.26***								
R ²				.13				.31				.34				.34
Public dyadic context																
Partner's adherence, internalized rules	-.02	.01	-.16	2.01*												
Perceived similarity	-.65	.21	-.25	3.11***												
R ²				.21												
Private conversation																
Perceived similarity	-.86	.30	-.24	2.91**	.61	.23	.21	2.70**	.72	.25	.21	2.87**				
R ²				.17				.28				.34				

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Appendix A

Public Context (9 items)

- Do not have highly personal conversations on the phone in the presence of the other person
- Try to be as little of a distraction as possible when talking on the phone (Baron & Campbell, 2012)
- Do not have fights or arguments on the phone in the presence of the other person
- Do not talk about inappropriate or private matters (like money, sex, or bodily functions) in the presence of the other person (Baron & Hård af Segerstad (2012)
- Be conscious of speaking volume and keep it at a reasonable level in the presence of the other person (Baron & Campbell, 2012)
- Do not talk on a mobile phone when the other person is trying to study or work (Lipscomb et al. 2007)
- Speak softly into the mobile phone when out in public with your friend or romantic partner (Baron & Hård af Segerstad (2012)
- Do not take calls on your mobile phone while ordering or buying something at a store or restaurant when out in public with your friend or romantic partner (Baron & Hård af Segerstad, 2010; Lipscomb et al. 2007)
- Do not use your mobile phone when out at the movies when with your friend or romantic partner (Axelsson, 2010; Lipscomb et al. 2007).

Private Conversation Context (7 items)

- Do not talk on the mobile phones
- Do not text on the mobile phones
- Do not play games on the mobile phones without the other person
- Do not watch videos on the mobile phones if only one person can see them
- Do not check social media, like Twitter or Facebook
- If someone has to take a phone call, the call should only take a few seconds
- If someone has to take a phone call that person should tell the caller she or he will have to call them back

Dyadic Public Context (6 items)

- Do not talk on a mobile phone when sitting with someone at a restaurant or bar (Baron & Hård af Segerstad, 2010; Lipscomb et al. 2007)
- Do not text on a mobile phone when sitting with someone at a restaurant or bar (Baron & Hård af Segerstad, 2010; Lipscomb et al. 2007)
- Do not use social media (Twitter, Facebook) on a mobile phone when sitting at a restaurant or bar
- Do not use your mobile phone while you are eating dinner out with a friend or romantic partner (Lipscomb et al. 2007)
- When my friend or romantic partner is driving and I am in the car, I should not text unless they want me to (Lipscomb et al. 2007)
- When my friend or romantic partner is driving and I am in the car, I should not make phone calls unless they want me to

Mobile Relationship Interference (9 items)

Cell phones are often a distraction in my relationship with this person

The way I use my cell phone interferes with my time together with this person

The way I use my cell phone interferes with my relationship with this person

The way the other person uses their cell phone interferes with our relationship

The way the other person uses their cell phone interferes with our time together

The way I use my cell phone decreases how much I enjoy my relationship with this person

The way my friend or relationship partner uses their cell phone decreases how much we enjoy our time together

I wish that cell phones were not around when we spend time together

I wish we would both just turn off our cell phones and spend time together